EMC COMPO 2019

The 12th International Workshop
on the Electromagnetic Compatibility of
Integrated Circuits

October 21-23, 2019

Haining, Hangzhou, China

Final Program

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EMC COMPO 2019
暨 鹃湖沙龙 第六期

The 12th International Workshop on the Electromagnetic Compatibility of Integrated Circuits
October 21-23, 2019, Haining, Hangzhou, China

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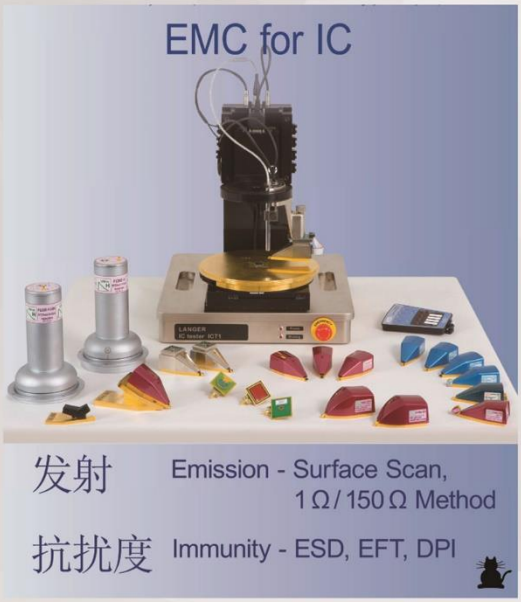

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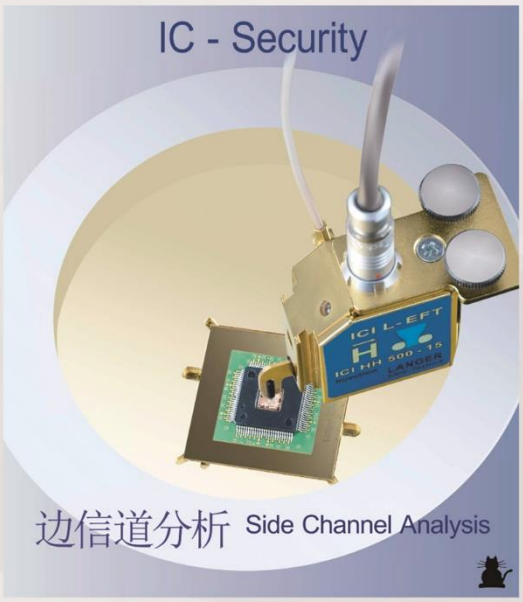

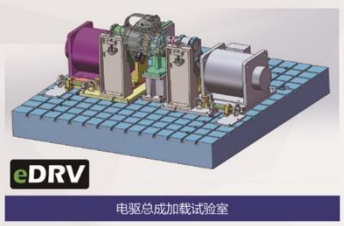

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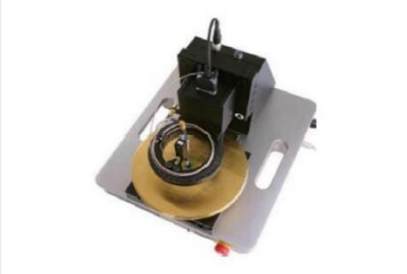

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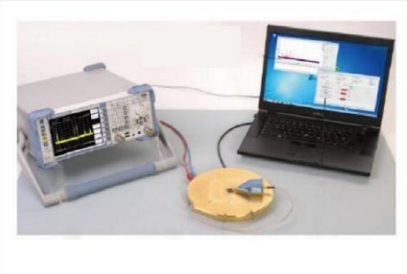

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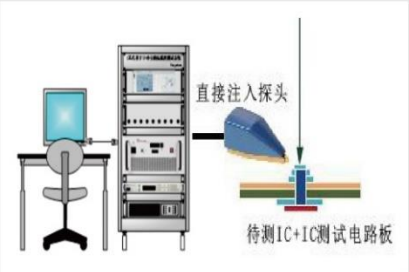

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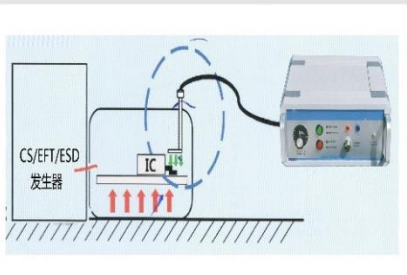
ESD/EFT Injection



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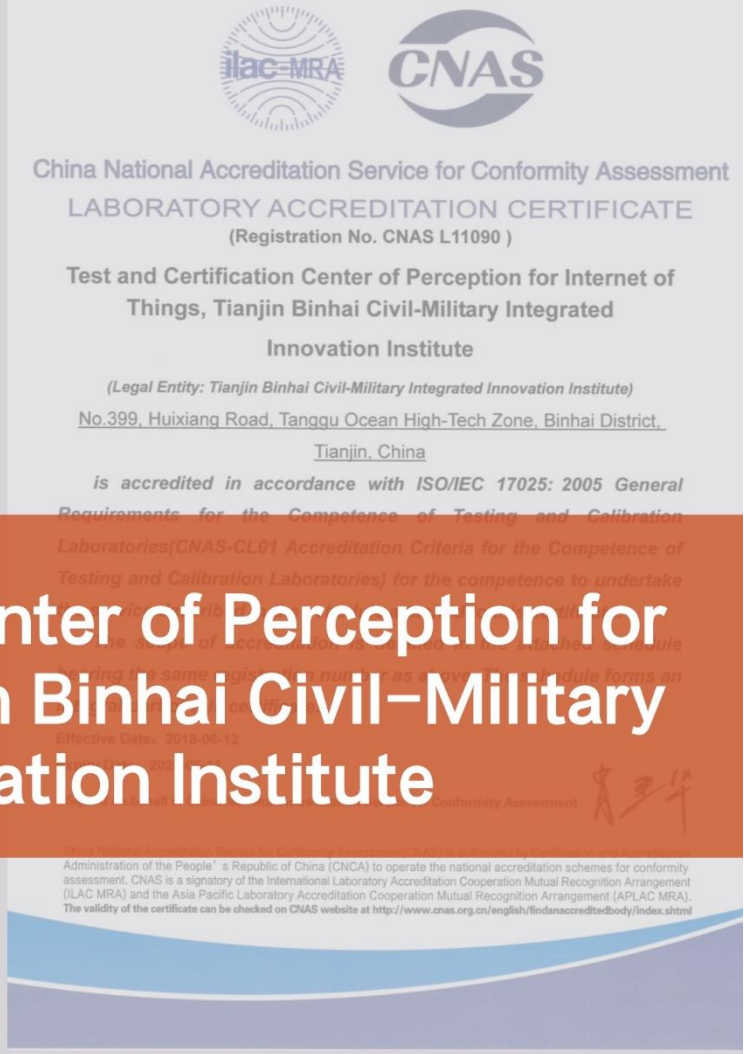

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WELCOME MESSAGE FROM THE GENERAL CHAIR AND TPC CHAIRS

We are privileged and honored to warmly welcome you to the **12th International Workshop on Electromagnetic Compatibility of Integrated Circuits** (in short, **EMC COMPO**) and the fabulous Zhejiang University International Campus. This is the first time that **EMC COMPO** is held in China since its inception in 1999 in Toulouse, France.

The EMC COMPO was eshtablished to address the new challenges on integrated circuit reliability and design issues related to electromagnetic interference, compatibility, signal integrity, power integrity and multiphsyics issues at chips as well as at system levels with the increasing operating frequency and down sizing. Following the success of first EMC COMPO event, it has been held in Angers of France in 2004, 2005 in Munich , 2007 in Torino, 2009 in Toulouse , 2011 in Dubrovnik, 2013 in Nara of Japan , 2015 in Edinburgh and 2017 in St Petersburg. The 12th EMC COMPO is held in the newly developed Zhejiang University International Campus at Haining of Zhejiang Province, a most vibrant town with historical and cultural glory, located at the Yangtze River Delta Economic Zone next to Shanghai and Hangzhou Bay areas with world-class electronic industry and research centers.

The Zhejiang University International Campus is newly developed to explore new and innovative educational models of higher education that draw from the advanced educational experiences around the world and cultivate innovative talent with international vision. The campus was initiated in February 2013, and the first cohort students enrolled in September 2016. It currently has around 1000 undergraduates and graduates from over 50 counties in the fields of engineering, biomedical, Business and China study.

This workshop will feature round 100 presentations during the three-day event, and the presentations cover a wide spectrum of topics ranging in EMC of integrated circuits as well as the emerging technical topics such as applications in 5G communication.

Your valued presence and contributions to the EMC COMPO 2019 has made the event a good networking platform for exchanging of ideas and innovations.

On behalf of the organizing committee, would like to record our appreciation to all the authors, presenters, session organisers, reviewers, sponsors for your strong support to this event. To the Technical Program Committee and volunteers, may we sincerely thank you for your very hard work and contribution.

To our guests from overseas, please do take time to savour and enjoy many sights and flavors of this historical , cultural , vibrant city. Have a wonderful stay here and we hope to make it a truly memorable one for you.

Best wishes

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Liang Zhou	Shanghai Jiao Tong University	**Xiuyin Zhang**	Southern University of Science and Technology
Long Li	Xidian University	**Yang Xu**	Zhejiang University
Qingsheng Zeng	Nanjing University of Aeronautics and Astronautics	**Zhangming Zhu**	Xidian University

Temple of Sea God in Haining

REGISTRATION

EMC Compo 2019 Registration is now open. Those who intend to participate the 12th International Workshop on the Electromagnetic Compatibility of Integrated Circuits, including speakers, session chairs, committee members, etc., are required to register for the conference.

Author Early bird registration: Take advantage of the early bird registration and pay your fees before **05 Sept, 2019**. On-site Registration will be available at the Registration Desk at the conference venue during the conference.

For an instant release of the conference program, the presenting authors of the accepted papers must complete their Early Bird Registration for the conference by **05 Sept., 2019,** with all the payments completed.

Registration Fee:

		EARLY BIRD (BY 05 SEPT. 2019)	STANDARD OR ON-SITE (AFTER 05 SEPT. 2019)
REGULAR	**IEEE Member**	**3100CNY(460USD)**	**3650CNY(540USD)**
	Non-Member	**3250CNY(480USD)**	**3800CNY(560USD)**
STUDENT	**IEEE Student Member**	**2000CNY(300USD)**	**2450CNY(360USD)**
	Student Non-Membe	**2300CNY(340USD)**	**2700CNY(400USD)**

Important Reminders:

- The fee does NOT include other cost such as accommodation, travel and transportation.
- Student participant should present his/her student ID at the conference reception desk.
- There is no refund on registration fees.
- Receipt: Please carefully write your Affiliation Name, and the receipt for Early Bird Registrations can be available at the conference venue.
- Bank Transfer: Please indicate **"Name+Paper ID+EMC"**. Please upload the scanned copy of your bank transfer receipt.
- Special Notes: Please do not consolidate your transfers which avoid your payment to be mixed up with others. (请注意: 请勿合并汇款 !!一笔汇款对应一张发票，不接受一笔汇款开多张发票!!)
- **Withdrawal/Cancellation Policy & Invoices:** Withdrawal/Cancellation must be notified to the Secretary in writing by e-mail (emc2019@zju.edu.cn). An administration fee of US$50(330RMB) applies for withdrawal/cancellation before 01 Oct. 2019. We regret that there will be no refund for withdrawal/cancellation received on or after Oct. 01 , 2019. In any case if you registered but cannot make it for the conference, you are encouraged to send in a substitute.
- Other Notes:Unless otherwise specified, mailing address on invoices shall follow registrant address on the registration form. Registration will only be confirmed once full payment is received

Registration Method:

(1) （中国内地参会者）Registrants are in mainland of China, and will pay the registration in RMB, please go the following on-line registration: http://emcconf.org/login.html

(2) International delegate registrants to register for the Symposium please go to the on-line registration portal. https://e.cma.sg/emccompo2019/

Registration Enquiry

Symposium Secretariat

Mr. Liming Zhou, Dr. Yan Li

Tel: (86) 18069862163 (86)15088606626

Email: emc2019@zju.edu.cn

SIGHTSEEING

ABOUT HANGZHOU

Located in the southeast coast area of China, Hangzhou, the capital city of Zhejiang province, is one of two sub-central cities in Yangtze River Delta economic circle. Built 5000 year ago, Hangzhou is a historical city with more than 8000 years of civilization. In the past, it once was applauded as "the most splendid and luxurious city in the world" by Marco Polo, the Italian traveler in the 13th century. At present, it is renowned as the "Oriental Capital of Leisure, City of Quality Life" with its unique leisure atmosphere and culture. It was also awarded as the "Oriental Capital of Leisure" by the World Leisure Organization in 2006, and one of the "Top Ten Global Leisure Model Cities" by the Chinese Academy of Social Sciences in 2011. It is now the most leisure city in China.

Hangzhou is one of the Best Tourism Cities in China. Its charm is best shown in various water landscapes with rivers, lakes, creeks and oceans, which display almost all kinds of beautiful water sceneries in the world. For example, the Qiantang River, Fuchun River, and Xin'an River enjoy marvelous scenery along their banks; the Beijing and Hangzhou Grand Canal, running through the north and south China, sees Chinese long history; the West lake which has been listed as the World Heritage, together with the Xianghu Lake and Thousand-Isle Lake are just like pearls scattering in different parts of the city with their unique beauty; the Xixi Wetland Park, as a rare wetland located in a city, is the first national wetland park in China; the Spectacular Qiantang River Tidal Bore is known for the world's largest tidal bore. The beauty of Hangzhou has attracted a lot of celebrities from home and abroad, such as Su Dongpo, Bai Juyi, Mao Zedong, Zhou Enlai, Deng Xiaoping, Richard Milhous Nixon, William Jefferson Clinton, Georges Pompidou, Jawaharlal Nehru, Kim Il Sung, and Norodom Sihanouk.

Welcome to Hangzhou!

West Lake

The Xixi National Westland Park

ABOUT HAINING

Haining is located in the north of Zhejiang Province and the Southern part of Hangzhou-Jiaxing-Huzhou flatlands, facing the Qiantang River in the south and to the east of Hangzhou. It is 61.5 kilometers away from Haining to Hangzhou, the provincial capital of Zhejiang, and 125 kilometers to Shanghai.

Because its splendid culture, prosperous economy, rich landscapes, Haining is reputed as "the land of fish and rice, the hometown of silk, and the city of leather". Haining has a long history with a splendid culture over 6000 years. In the city there are many places of historic interests and scenic beauties.

The world-famous Haining tides are called as a "marvellous spectacle in this world". The scence is and "unparalleled spectacle" as described by Su dongpo, the well-known poet in Song Dynasty. The Qiantang River Tidenbsp. Haining is also China's biggest production base of leather products and has been named as the "city of leather".

Tide Watching

There are two gushing tides nature phenomena in the world. One is in the mouth of the Amazon river in South America, another is in the Haining which is in the north bank of the Qiantang river. From 1st to 5th, 15th to 20th of every lunar month are great tides days. So you can view the tides in 120 days a year. On every 18th day of the 8th lunar month, the day is the “viewing tides” day in Chinese custom.

It was said the day is the god of tides' birthday. They will hold quite a few ceremonies for the birthday according to the local custom begging for the peace, placing their nice wishes on these. For a thousand years, the marvelous spectacle under heaven has attracted numberless famous people came to view the tides.

ABOUT ZJU-UIUC INSTITUTE

The Zhejiang University-University of Illinois at Urbana-Champaign Institute (the **ZJU-UIUC Institute**) is a new cooperatively-run engineering college at the new Zhejiang University (ZJU) International Campus in Haining, China. By introducing top engineering curricula and resources from UIUC, complemented with contributions from counterpart colleges and departments from ZJU, ZJU-UIUC Institute will provide a world-class engineering education. The institute is officially approved by the Ministry of Education, China on February 2016. ZJU and UIUC cooperatively cultivate undergraduates and graduate students. Currently, ZJUI has 518 undergraduates, 49 PhD students. Faculty of ZJUI is composed of talent recruited from top-tier international universities and outstanding professors from ZJU and UIUC.

The ZJU-UIUC Institute offers Dual Degrees(BSc from Zhejiang University and BSc from UIUC) for undergraduate in the disciplines of Mechnical Engineering, Civil and Environmental Engineering, Electrical Engineering and Computer Engineering. The Institute enrolls MSc and PhD students in above captioned fields.

International Campus is located in Haining in northeast Zhejiang province. Haining is at the heart of the Yangtze River Delta economic zone, with Hangzhou to the west, Suzhou to the north, and Shanghai only 120 kilometers to the east.

The International Campus emphasizes a residential college education model. Each residential college provides a friendly and supportive learning-and-living environment. Each College offers library facilities, study rooms, discussion and interactive spaces, laundry facilities, activity spaces, and fitness rooms. The Fellows, Tutors and Counselors in each College are ready to help students make the most of their learning experience, through general education, personal development, extracurricular activities, and events. The program seeks to help students become well-rounded people with knowledge, leadership skills, competence, creativity, morality, and individuality.

For more information, please login the web: http://zjui.zju.edu.cn

TRANSPORTATION

Airport Route:

1. Hangzhou Xiaoshan International Airport (HGH) → Hotel

(1) Recommendation 1: Taxi. The distance is about 50 kilometers. The whole journey takes about 1 hour and 10 minutes. The cost is about 200 RMB.
(2) Recommendation 2: Public transportation.Airport Bus → Haining Passenger Transportation Center, transfer Bus No.15 to Shooting Hall Station, then walk to the hotel.

2. Shanghai Hongqiao International Airport (SHA) → Hotel

(1) Recommendation 1: High-speed rail. Shanghai Hongqiao International Airport → Shanghai Hongqiao High-speed Railway Station → Tongxiang Railway Station. Then a taxi to the hotel and it costs about 70 yuan.
(2) Recommendation 2: Public transportation. Shanghai Hongqiao International Airport → Metro Line 10 → Metro Line 3 → Shanghainan Railway Station → Haining Railway Station, transfer Bus No.33/202 to North Station of Haining International Campus, and then walk to the hotel or take a taxi from Haining Railway Station to the hotel.

3. Shanghai Pudong International Airport (PVG) → Hotel

(1) Recommendation: Airport Bus → Shanghainan Railway Station → Haining Railway Station, transfer Bus No.33/202 to North Station of Haining International Campus, and then walk to the hotel or take a taxi from Haining Railway Station to the hotel.

Railway Station Route:

1. ***Haining Railway Station → Hotel***

   Bus No.33/202 to North Station of Zhejiang University Haining International Campus; Taxi: 6 km, it costs about 15 RMB

2. ***Hainingxi Railway Station → Hotel***

   Bus No.131 to Haining Railway Station, then transfe Bus No.33/202 to North Station of Zhejiang University Haining International Campus, and walk to the hotel.

3. ***Tongxiang Railway Station → Hotel***

   Taxi: about 26 kilometers away, takes about 40 minutes and costs about 70 RMB.

Passenger Transportation Center Route:

1. ***Hangzhou Passenger Transportation Center → Haining Passenger***

   Transportation Center, transfer bus No. 15 to Shooting Hall Station, then walk to the hotel.

2. ***Shanghainan Railway Station Passenger Transportation Center → Haining***

   Passenger Transportation Center, transfer bus No. 15 to Shooting Hall Station, then walk to the hotel.

Scenic Spots Around:

(1) ***YanGuan bore the scenic spot***:about 45 minutes'drive, 28 kilometers away.
(2) ***Jiaxing North-South Lake***: about 45 minutes'drive, 29.8 kilometers away.
(3) ***Cuckoo Lake Park***: It takes about 5 minutes to walk there.
(4) ***China Leather City***:68 kilometers away, about 15 minutes'drive; or take bus No.15 at Shooting Hall Station and get off at Leather City Station.

YanGuan

Jiaxing North-South Lake

Cuckoo Lake Park

China Leather City

Shopping:

1. ***Haining Intime (Yintai) Mall***

   Address: No.365, Haichang road

   Distance: about 7 km alway from the campus, 17 minutes drive

   Public Transportations: Take the No.29 Bus at school gate , get off at the Intime Mall(Ni Gong Qiao) Station

   Office Hour: Sunday to Thursday 9:30~ 21:30 Friday & Saturday 9:30 ~ 22:00

   Tel: +86 573 87500000

2. ***Hualian Mall--- popular with the locals***

   Address: No.58, Gong Ren Road

   Distance: about 5 km alway from the campus, 15 minutes drive

   Public Transportations: Walk to the shooting hall bus station, then take No.15 Bus, get off at Ziwei Primary School Station, and walk about 6 minutes (600 meters). Or get off at Song Xiu Jing Yuan Station ,then transfer to No.18 Bus, get off at the Hualian Mall.

   Office Hour: 9:00 ~ 21:00

   Tel: +86 573-87285777

3. ***China Leather Market***

   Address: No. 201, Haizhou Road

   Distance: about 6.8 km away from the campus, 15 minutes drive

   Public Transportation: Take No.15 Bus at the shooting hall to Leather Market Station

   Office Hour: 9:00 ~ 17:00

   Web: http://www.chinaleather.com

4. ***Aotelaisi Plaza Outlet***

   Address: No.199, Qichao Road

   Distance: 50 km from the campus, 56 minutes by car

   Public Transportations: Take No.15 Bus at the Shooting Hall to Leather Market Station,then transfer to No.868 Bus and get off at the Aotelaisi Plaza

   Office Hour: May -Oct.: 09:30-21:30;

Nov. - Apr.: Monday - Friday 10:00-21:30, Saturday - Sunday 09:30-21:30

Tel: +86 571-86847777

Web: http://www.bloxias.com

5. ***Imported Food Mall***

Address: No.88, Caohejing Haining Road Economic Development Zone

Distance: about 11.5 km away from the campus, 22minutes drive

Public Transportations: Take No.33 Bus at the North Gate of Intl Campus, get off at the Zi Wei Li Station. Then, transfer to No.31 Bus, get off at the Imported Food Mall.

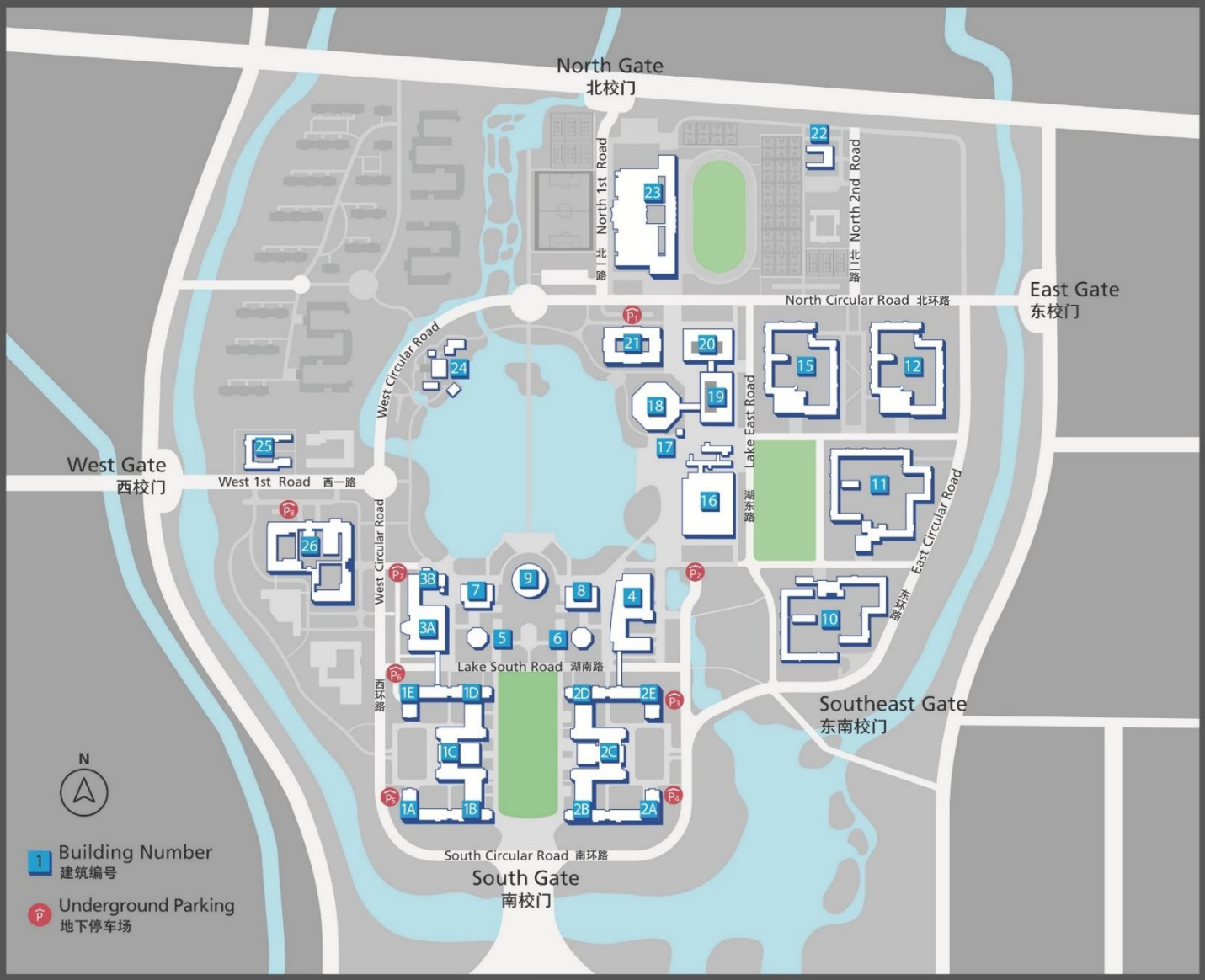
Tel: +86-573-89708800

Web: http://www.cifm.cn/en/






CAMPUS MAP
校园地图



1C ZJU-UIUC Institute 浙江大学伊利诺伊大学 厄巴纳香槟校区联合学院	5 Lecture Theatre West 西讲堂	12 No.3 Residential College 3号书院	21 Arts and Science Building 文理楼
1E Interdisciplinary Research Building 成果转化与交叉研究中心	6 Lecture Theatre East 东讲堂	15 No.1 Residential College 1号书院	22 Hospital 校医院
2A ZJU-UoE Institute 浙江大学爱丁堡大学联合学院	7 Multimedia Hall 多功能厅	16 Student Center 学生中心	23 Gymnasium 体育馆
2E Laboratory Building 教学实验楼	8 No.8 Building 8号楼	17 Bell Tower 钟楼	24 Faculty Club 教工俱乐部
3A Business School 商学院	9 Auditorium 学术大讲堂	18 Library 图书馆	25 Serviced Apartment 教师公寓
3B Administration Building 行政楼	10 No.4 Residential College 4号书院	19 Learning and Teaching Building North B 北教学楼B楼	26 Academic Exchange Center 学术交流中心
4 Learning and Teaching Building South 南教学楼	11 No.2 Residential College 2号书院	20 Learning and Teaching Building North A 北教学楼A楼	

CONFERENCE VENUE&ACCOMMODATION

The International YuanZheng Hotel/Academic Exchange Center (Building No.26) at Zhejiang University International Campus

Address: The International YuanZheng Hotel ZJU， **Building No.26, 718 East Haizhou Road (** Jinfang Road near Tangnan East Road), Haining City, Zhejiang Province, 314400, 浙江省海宁市竞芳路近塘南东路（浙江大学海宁国际校区西门）

Telephone: 0573-87375666 or 0573-89706695

Fax: 0573-89706636

Website: http://www.yz-hotels.cn/

Rooms:

Room	Price (per nights)
Double room	280 RMB
Single room	280 RMB
Deluxe Single room	330 RMB
Suite	428 RMB
Deluxe suite	528 RMB

Introduction： The International YuanZheng Hotel ZJU is a high-quality business and academic conference hotel managed by Yuanzheng Travel Group of Zhejiang University, which is known as "Oriental Cambridge". The hotel is located in Haining City, Jiaxing City, Zhejiang Province, which is "the land of fish and rice, the house of silk, the country of culture and the capital of leather". It is located in the international joint campus of Zhejiang University, only an hour's drive from Hangzhou and Shanghai. The hotel is built in accordance with the lake and is adjacent to the Guhu Eco-Park, which is called "Water-Green City-Yingcui Island". It is simple and elegant, showing the cultural heritage of higher education institutions. The hotel has 144 rooms (suites) with Chinese restaurants, cafeterias and multi-compartments. The decoration is "Zhejiang University Humanities" style. The main dishes are Hangzhou and Haining dishes. At the same time, the hotel has seven advanced multi-functional halls, conference rooms and banquet halls, with huge meeting space, equipped with modern multimedia technology, to meet the needs of all kinds of meetings. The International YuanZheng Hotel ZJU is based on the humanistic quality of Zhejiang University and backed by the history and culture of Haining to create a comfortable and elegant warm harbour for you.

Reservation: Please download the following form and and complete it, then send this form to emc2019@zju.edu.cn, you will receive a manual response. If you don't received a response, please send this form again. Please make a reservation before September 21, 2019. There may be no extra rooms beyond the deadline.The form is divided into two versions: Chinese version and English version. For Chinese, please download the Chinese version. For others, please download the English version.

Hotel Reservation Form of Englist Version:http://emcconf.org/Hotel%20Reservation%20Form.docx

Hotel Reservation Form of Englist Version: http://emcconf.org/宾馆房间预订表.docx

HOTEL RESERVATION FORM

Hotel Name: International YuanZheng Hotel

Address: Building No.26, 718 East Haizhou Road (Jinfang Road near Tangnan East Road), Haining City, Zhejiang Province, 314400, 浙江省海宁市海州东路 718 号（竞芳路近塘南东路，浙江大学海宁国际校区西门）
Telephone: 0573-87375666 or 0573-89706695

For more inforamtion hotel, please visit the website: http://emcconf.org/hotel.html

1.Please enter your personal information

Surname		**Name**	
Telphone		**Email address**	
Arrival date		**Departure date**	

2. Here's an introduction to hotel rooms. Please make sure what kind of room and how many rooms you want to reserve.

Room	Price (per nights)	Number of rooms you need
Double room	280 RMB	
Single room	280 RMB	
Deluxe Single Room	330 RMB	
Suite	428 RMB	
Deluxe Suite	528 RMB	
If you have booked a single room, but the number of single rooms is not enough, would you like to live in a double room with another person? (Yes/No)		

Note: The number of deluxe single rooms, suites and deluxe suites is limited. If they are sold out, other rooms will be arranged for you.

3.Credit for reservation deposit
Credit card information is only for deposie, you need to pay the full amount at the front desk of the hotel.
Card Type: VISA☐ MASTERCARD☐ AMEX☐

Name of Card Holder:

Credit Card Number:

Expiry Date: (MM/YYYY):

Date:_____ Signature:

Please send this form to emc2019@zju.edu.cn, you will receive a manual response. If you don't received a response, please send this form again. Please make a reservation before **September 30, 2019.** There may be no extra rooms beyond the deadline.

If you have any questions, please contact the secretary of the conference: emc2019@zju.edu.cn,
Dr. Yan Li: 15088606626,
Mr. Liming Zhou: 18069862163

海宁浙大圆正国际酒店房间预订表

酒店名称：海宁浙大圆正国际酒店
地址：浙江省海宁市海洲东路 718 号（竞芳路近塘南东路，浙大海宁国际校区西门）
前台电话: 0573-87375666　或者 0573-89706695
更多详细信息可以点击网址: http://emcconf.org/hotel.html

1.请填写以下个人信息与行程信息

姓名		**电话**	
到达日期		**离开日期**	
邮箱			

2. 以下是关于酒店房间类型和价格的介绍，每一种类型房间的总数都是有限制的。请确定你需要预定的房间类型并在后面填上你需要预定的数量。

房间类型	价格（每晚）	你需要预定的房间数量
标准间	280 元	
单人间	280 元	
豪华单人间	330 元	
套房	428 元	
豪华套房	528 元	
如果单人间数量不够的话，你是否愿意与别人一起标准间（请填写是/否）		

注：豪华单人间、套房和豪华套房数量有限，如果在预定时已售完，将为您安排其他房型

3. 付款

此表单仅用于房间预订，所有参会人员需要到酒店进行付款，请选择您准备使用的付款方式：

现金☐　　银行卡/信用卡☐　　支付宝/微信☐　　其他☐

请将此表发送至 emc2019@zju.edu.cn 邮箱，以收到人工回复为准，如果没有收到回复，请再次发送询问。请在 **2019 年 9 月 30 日**之前进行房间预订，超过截止日期有可能没有多余的房间。

有任何疑问，请联系会议秘书：emc2019@zju.edu.cn ，
李燕博士:15088606626,
周礼明:　18069862163

TECHNICAL SESSIONS

TECHNICAL SESSIONS

Plenary Talks – Monday Morning, October 21, 2019

Room	*Multimedia Hall (Building No.7)*
08:40 am -09:20 am	**Opening Ceremony for EMC COMPO2019** *Chair: Er-Ping Li, Zhejiang University* *Multimedia Hall (Building No.7) , Zhejiang University International Campus*
09:20 am -10:00 am	**Plenary Talk I: Technology Trends and Electromagnetic Compatibility of Integrated Circuits** ***Etienne SICARD,*** *INSA, University of Toulouse, France*
10:00 am -10:40 am	**Plenary Talk II: Antenna-in-Package (AiP) Technology：The Key to the Success of Millimeter-wave 5G** ***ZHANG Yueping****, FIEEE, Nanyang Technological University, Singapore*
10:40 am -11:00 am	**Tea Break**
11:00 am -11:40 am	**Plenary Talk III: 2.5D/3D Terabyte/s Bandwidth HBM (High-bandwidth Memory Module) Designs for Artificial Intelligence (AI) Computers** ***Joungho Kim****, FIEEE, KAIST, (Korea Advanced Institute of Science and Technology)*
11:40 am -12:20 am	***Plenary Talk IV: A chronicle of 22 years in microcontroller EMC business*** ***Thomas Steinecke****, Infineon Technologies, Germany*

Technical Sessions – Monday Afternoon, October 21, 2019

Rooms	*Symposium Qiushi Hall International Yuan Zheng Hotel*	*Symposium Guiyu Hall International Yuan Zheng Hotel*
13:30pm -15:10pm	**Emission and Immunity-aware IC Design** *Chair(s):* *Qingxin Chu, Franco Fiori*	**【Special session】Advanced Techniques for Electromagnetic Interference Modeling and Suppressing in High-Speed Circuits** *Chair(s):* *Xingchang Wei, Da Yi*
13:30pm – 13:50pm	**De-coupling for MIMO Anttena (invited)** ***QingXin Chu (South China University of Technology)***	**Calculation of Number of Equivalent Magnetic Dipoles for the Source Reconstruction by using Artificial Neural Network (#1570572984)** *Yu-Han Zhong, Ze-Kai Hu, Li Ding and Xing-Chang Wei (Zhejiang University, P.R. China)*
13:50pm -14:10pm	**A Differential Difference Amplifier Highly Immune to EMI (#1570582644)** *Franco Fiori (Politecnico di Torino, Italy)*	**Coupling Analysis of Oblique Transmission Lines Excited by Ambient Wave With a Time Domain Hybrid Method (#1570580160)** *Zhihong Ye, Dan Gou, Jianjian Zhou (Chongqing University of Posts and Telecommunications, P.R. China)*
14:10pm -14:30pm	**In-Place Power Noise and Signal Waveform Measurements on LVDS Channels in Fan-Out Multiple IC Chip Packaging (#1570581065)** *Hiroki Sonoda and Makoto Nagata (Kobe University, Japan); Katsuya Kikuchi (AIST, Japan); Daisuke Tanaka, Yoshihide Murakami, Kyoshi Mihara and Kazuo Makida (Murata Manufacturing Co., Ltd., Japan)*	**A Method of Analyzing the Impact of the Wiring Parameters on the Electromagnetic Coupling to PCB Inside Electronic Equipment (#1570576129)** *Pei Xiao, YongFeng Qiu and Zhu Liu (Hunan University, P.R. China); Li-an Bian (National University of Defense Technology, P.R. China); Gaosheng Li (Hunan University, P.R. China)*
14:30pm -14:50pm	**The SI and EMI Analysis of Sub-Femto-Farad readout circuit for capacitive sensor (#1570581541)** *Xinquan Lai, YuHeng Wang, Mingming Liu and Lingfei Zhang (Institute of Electronic Computer-Aided Design, Xidian University, P.R. China;Key Laboratory of High-Speed Circuit Design and Electromagnetic Compatibility, Ministry of Education, P.R. China)*	**Absorptive Surface Based on Graphene Composite for Advanced EMI Suppression (#1570579237)** *Da Yi (Chongqing University, P.R. China); Xing-Chang Wei (Zhejiang University, P.R. China); Yi-Li Xu and Shuai Xu (Huawei Technologies Co., Ltd, P.R. China); Yaojiang Zhang (Huawei Technologies Co., LTD., P.R. China); Ming-Chun Tang (Chongqing University, P.R. China); Bin Shen (Chinese Academy of Sciences, P.R. China)*
14:50pm -15:10pm	**Magnetic Composite Sheets in IC Chip Packaging for Suppression of Undesired Noise Emission to Wireless Communication Channels (#1570581071)** *Koh Watanabe, Kosuke Jike, Satoshi Tanaka, Noriyuki Miura and Makoto Nagata (Kobe University, Japan); Akihiro Takahashi, Yasunori Miyazawa and Masahiro Yamaguchi (Tohoku University, Japan)*	**Crosstalk Noise Characterization Between Spoof SPP Transmission Line and Differential Microstrip Lines (#1570580458)** *Meini Wang, Min Tang and Junfa Mao (Shanghai Jiao Tong University, P.R. China); Hao Chi Zhang and Tie Jun Cui (Southeast University, P.R. China)*
15:10pm -15:30pm	**Tea Break**	**Tea Break**

Technical Sessions – Monday Afternoon, October 21, 2019

Rooms	*Symposium Qiushi Hall International Yuan Zheng Hotel*	*Symposium Guiyu Hall International Yuan Zheng Hotel*
15:30pm -17:30pm	**Emission and Immunity-aware IC Design** *Chair(s):* *Masahiro Yamaguchi, Shih-Yi Yuan*	**【Special Session】Advanced Techniques for Electromagnetic Interference Modeling and Suppressing in High-Speed Circuits** *Chair(s):* *Xingchang Wei, Da Yi*
15:30pm -15:50pm	**Sintered Ferrite Thin Plate Noise Suppressor Mounted on IC Chip Interposer (invited, #1570581121)** *Masahiro Yamaguchi, Akihiro Takahashi and Yasunori Miyazawa (Tohoku University, Japan); Koh Watanabe, Kosuke Jike, Satoshi Tanaka, Noriyuki Miura and Makoto Nagata (Kobe University, Japan)*	**Broadband Visualization Method for Near Field Scanning (#1570573079)** *Xing-Jian Shangguan, Tian-Hao Song and Xing-Chang Wei (Zhejiang University, P.R. China)*
15:50pm -16:10pm	**Analysis and Calculation of Transfer Functions Relating Power Supply Noise to Jitter Based on Output Buffer of LVSTL Interface (#1570581176)** *Yang Liu and Mingze Xia (Xidian University, P.R. China)*	**A Lightning Protection Circuit Design in Power Supply Systems (#1570581208)** *Yini Sun, Lingyun Ye, Kaichen Song and Xinglin Sun (Zhejiang University, P.R. China)*
16:10pm -16:30pm	**Modeling for Nonlinear High-speed Links Based on Deep Neural Network (#1570572515)** *Xiuqin Chu, Jingxiang Li, Xiaosong Li, Jun Wang, and Yushan Li (Xidian University, China)*	**Case Study on Chip-Package-Board Simulation for Millimeter-wave Integrated Circuit Design Purpose (#1570584577)** *Lai He and Wei Li (Fudan University, P.R. China)*
16:30pm -16:50pm	**Automated EMI Measurement and Data Processing Integration Platform (#1570581081)** *Shih-Yi Yuan and PoWei Huang (Feng Chia University, Taiwan); Chia-Hung Su (Electronic Testing Center, Taiwan)*	**Precision All-Optical EMC Test Technique of Integrated Circuits (#1570581255)** *Bo Yang (Nanjing University of Posts and Telecommunications & Jiangsu Institute of Quality and Standardization, P.R. China); Wen-Hao He, Bang-Xing Gu, Ming-Ming Dong and Guo-Bin Chen (Nanjing University of Posts and Telecommunications, P.R. China); Li-Wen Xing (Nanjing Rongxiang Testing Equipment Co., Ltd., P.R. China); Guan-Xiang Du (Nanjing University of Posts and Telecommunications, P.R. China)*
16:50pm -17:10pm	**The Research of Bulk Current Injection Probe Used for ICs Electromagnetic Immunity Measurement (#1570580145)** *Yaoxing Zhang, Zhaowen Yan, Jianwei Wang, Wei Liu, Zhaoming Ning, Zheng Min (Beihang University, P.R. China)*	**Research on the Electric Probe Calibration Based on Electric Dipole Moment (#1570580411)** *Zheng Min(BeiHang University, P.R. China)*
17:10pm -17:30pm	**Side Channel Leakage Information Based on Electromagnetic Emission of STM32 Micro-Controller (#1570580778)** *Xu Zhijian, Tang Qiang, Song Yanyan, Zhang Dongyao and Zhou Changlin (Strategic Support Force Information Engineering University, Zhengzhou, P.R. China)*	**A Novel Frequency Selective Surface Applied for EMI Suppression in Integrated Circuit Package (#1570583791)** *Panpan Zuo (HeBei University of Technology, P.R. China); Hang Jin, Tian-Wu Li and Er-Ping Li (Zhejiang University & The Key Laboratory of Advanced Micro/Nano Electronic Devices & Smart Systems and Applications, P.R. China)*

Technical Sessions – Tuesday Morning, October 22, 2019

Rooms	*Symposium Qiushi Hall* *International Yuan Zheng Hotel*	*Symposium Guiyu Hall* *International Yuan Zheng Hotel*
09:00am – 10:20am	**ESD Immunity Techniques at IC Level** *Chair(s):* *Bernd Deutschmann, Li Yongjian*	**[Special Session] Data Processing Methods and Techniques for EMC Analysis, Design and Diagnosis** *Chair(s):* *Huapeng Zhao，Si-Ping Gao*
09:00am -09:20am	**Soft-Failures in Component-Level ESD Testing on the Example of Flip-Flop Data Retention (#1570580421)** *Patrick Schrey(Graz University of Technology & Institute of Electronics, Austria)*	**Impulse Immunity of Interfaces between Intelligent Media Processors and DDR3 SDRAM Memory (#1570580276)** *Jianfei Wu, Bo Fan (National University of Defense Technology, P.R. China); Yafei Li, Hongli Zhang , Hong Li, Ang Zhang (Tianjin Binhai Civil-military Integrated Innovation Institute, P.R. China)*
09:20am -09:40am	**Optimization of LDMOS-SCR Device For ESD Protection Based On 0.5μm CMOS Process (#1570580701)** *Xiangliang Jin, Yang Wang and Zeyu Zhong (Hunan Normal University, P.R. China)*	**Skeletonization Scheme-based Matrix Compression Method for Electromagnetic** *Analysis and Design (#1570574764)* *Huapeng Zhao and Xinzhi Li(University of Electronic Science and Technology of China, P.R. China)*
09:40am -10:00am	**Quadrature VCO Via Transformer-coupled Transmission Line (#1570536106)** *Wen Cheng Lai(National Taiwan University of Science and Technology, Taiwan) Sheng-Lyang Jang and Jia-Wun Syu(National Taiwan University of Science and Technology)*	**Analysis of Information Leakage from MCU Using Neural Network (#1570580470)** *Si-Ping Gao and Yingkai Guo (National University of Singapore, Singapore); Zaw Thet Aung (Research Engineer, Singapore); Yong-xin Guo (National University of Singapore, Singapore)*
10:00am -10:20am	**Soft-Failures in Component-Level ESD Testing on the Example of a Bandgap (#1570580445)** *Patrick Schrey(Graz University of Technology & Institute of Electronics, Austria)*	**Modeling and Co-simulation of Electrical and Thermal Characteristics of Coaxial TSVs with Equivalent Circuit Approach(#1570591449)** *Qiu Min, Er-Ping Li and Wenchao Chen (Zhejiang University, P.R. China); Jian-Ming Jin (University of Illinois at Urbana-Champaign, USA)*
10:20am -10:40am	**Tea Break**	**Tea Break**

Technical Sessions – Tuesday Morning, October 22, 2019

Rooms	*Symposium Qiushi Hall* *International Yuan Zheng Hotel*	*Symposium Guiyu Hall* *International Yuan Zheng Hotel*
10:40am – 12:20pm	**Signal and Power Integrities at IC Level** *Chair(s):* ***Qiuxin Chu, Thomas Steinecke***	**【Special Session】Interconnect Design, Modeling, and Applications in High-speed Circuits** *Chair(s):* ***Wen-Sheng Zhao，Jian Wang***
10:40am -11:00am	**Stochastic Partial Inductance for the Power Integrity Analysis by Polynomial Chaos Expansion (invited, #1570580105)** *Haimi Qiu, Lijun Jiang (University of Hong Kong); Albert Ruehli (Missouri University of Science and Tech, USA)*	**Comparison of Harmonic Suppression Techniques (#1570583917)** *Rahul Nadgouda(TU Graz & NXP Semiconductors, Austria); Bernd Deutschmann(Graz University of Technology, Austria)*
11:00am -11:20am	**Impact of Bypass Capacitors Placement on SSN in a MCU Based System: Modelling and Measurement (#1570572992)** *Melanie Moign (Polytech'lab & STMicroelectronics, France); Jean-Pierre Leca and Nicolas Froidevaux (STMicroelectronics, France); Yves Leduc (Polytech'Nice-Sophia, Université de Nice & Former TI Fellow, Texas Instruments, France); Gilles Jacquemod (University of Nice, France);*	**Potential Applicability of Single-Walled Carbon Nanotube Through-Silicon Vias for Differential Signal Transmission (#1570573026)** *Qing-Hao Hu, Wen-Sheng Zhao and Gaofeng Wang (Hangzhou Dianzi University, P.R. China); Da-Wei Wang (Zhejiang University, P.R. China)*
11:20am -11:40am	**Revisiting EAVP for Power Delivery Decoupling Optimization (#1570579976)** *Shenghao Liu and Baixin Chen (Zhejiang University, P.R. China); Cheng Zhuo (Zhejiang Univ, P.R. China)*	**Nanocarbon Interconnect Modeling and Analysis (#1570572981)** *Wen-Sheng Zhao (Hangzhou Dianzi University, P.R. China)*
11:40am -12:00am	**Modeling Power/ground Planes with Signal Via Based on Resonant Cavity Method (#1570572550)** *Jun Wang, ,Xiuqin Chu, Jianmin Lu, Yang Liu, Yushan Li (Xidian University, China)*	**Impact of Mode Propagation on Radiated Immunity Characterization in Commonly Used TEM Cells (#1570555679)** *Mohsen Koohestani, Mohamed Ramdani and Richard Perdriau (ESEO-IETR, Dept. Electrical and Control Engineering, RF-EMC Research Group, France)*
12:00am -12:20pm	**Statistical Analysis of Simultaneous Switching Output (SSO) Impacts on Steady State Output Responses and Signal Integrity (#1570580148)** *Youngwoo Kim, Yuichi Hayashi and Daisuke Fujimoto (Nara Institute of Science and Technology, Japan); Daehwan Lho and Hyunwook Park (Korea Advanced Institute of Science and Technology, Korea); Hikaru Nishiyama (Nara Institute of Science and Technology, Japan); Joungho Kim (KAIST, Korea)*	**A Wideband Common-Mode Noise Filter Based on Complementary Resonant Structure (#1570579992)** *Jian Wang (University of Ningbo, P.R. China); Jie Liu and Yin-Shui Xia (Faculty of Electrical Engineering and Computer Science, Ningbo University, P.R. China)*
12:20pm -13:30pm	**Lunch**	**Lunch**

Technical Sessions – Tuesday Afternoon, October 22, 2019

Rooms	*Symposium Qiushi Hall* *International Yuan Zheng Hotel*	*Symposium Guiyu Hall* *International Yuan Zheng Hotel*
13:30pm – 15:10pm	**EMC Simulation** *Chair(s):* ***Zhongxiang Shen,** Alexandre Boyer*	**Chip Level EMC** ***Chair(s):*** ***Kaixue Ma, Meng Cui***
13:30pm – 13:50pm	**Energy Selective Surface of High Performance (Invited, #1570568828)** *Liang Liang Liu, Lin Zhou and **Zhongxiang Shen** (Nanyang Technological University, Singapore)*	**Research on Multi-Octave Ultra-broadband Receiver Chip(invited)** *Kaixue Ma(Tianjin University,P.R. China)*
13:50pm -14:10pm	**A Case Study to Apprehend RF Susceptibility of Operational Amplifiers (#1570566998)** *Alexandre Boyer (LAAS-CNRS, France); Etienne Sicard (INSA de Toulouse, France)*	**EMC Standardization of Integrated Circuits in China (invited)** *Cui Qiang (P. R. China)*
14:10pm -14:30pm	**Hybrid Simulation of Electromagnetic Field of the On-Chip Clock Distribution Network (#1570571059)** *Huimin Liu and Tao Su (Sun Yat-sen University, P.R. China)*	**The Experiment Study Of Effects on ADC Chip Against Radiation And Electromagnetic Environment （#1570580828）** *Ping Wu, Zhiqian Xu and Cui Meng (Tsinghua University, P.R. China) Lin Wen, Qi Guo (Xinjiang Technical Institute of Physics and Chemistry,Chinese Academy of Sciences, Urumqi, China)*
14:30pm -14:50pm	**Study of The Radiated Immunity of a Drain-Source Current Sensor Using Near Field Scan Immunity Method （#1570573142）** *Andre Durier (IRT Saint-Exupery, France); Sonia Ben Dhia (INSA de Toulouse, France); Tristan Dubois (IMS BORDEAUX, France)*	**Effects of the On-Die Decoupling Capacitors on the EME Performance in 28 nm FD-SOI Technology (#1570576372)** *Mario Rotigni, Mauro Merlo Aurora Sanna, Paolo Colombo and Renato Castellan (STMicroelectronics, Italy); Valentino Liberali (Università degli Studi di Milano, Italy); Andrea Barletta and Roberto DeChecchi (Cadence, Italy); Kristoffer Skytte (Cadence, Denmark)*
14:50pm -15:10pm	**Electrothermal Effects on Reliability of Vertical Resistive Random Access Memory Array by Parallel Computing(#1570590023)** *Hao Xie, Guodong Zhu, Xingxing Xu, Shuo Zhang, Wen-Yan Yin and Wenchao Chen (Zhejiang University, P.R. China); Yazhou Chen (National Key Laboratory on Electromagnetic Environment Effect, P.R. China); Jixin Chen (Science and Technology on Electronic Information Control Laboratory, P.R. China);*	**Simulation Analysis of Electromagnetic Shielding of Electronic Device Chassis (#1570577088)** *Jia Xiao, Zhengxiang Song, Jianhua Wang and Liang Wang (Xi'an Jiaotong University, P.R. China)*
15:10pm -15:30pm	**Tea Break**	**Tea Break**

Technical Sessions – Tuesday Afternoon, October 22, 2019

Rooms	*Symposium Qiushi Hall International Yuan Zheng Hotel*	*Symposium Guiyu Hall International Yuan Zheng Hotel*
15:30pm -17:10	**Modeling Techniques for EMC** *Chair(s):* ***Wenyan Yin, Sun Yan***	**Testing** *Chair(s):* ***Luo Xun, Li DongYing***
15:30pm -15:50pm	**PDN Resonance Frequencies and FTB Robustness Correlation（#1570572990）** *Lorenzo Quazzo (Polytech'Lab & STMicroelectronics, France); Nicolas Froidevaux (STMicroelectronics, France); Henri Braquet (Nice Sophia Antipolis University, France); Gilles Jacquemod (Nice Sophia Antipolis University, France);*	**Digital Microwave/MM-wave Transmitter for 5G Application(Invited)** *Luo Xun(University of Electronic Science and Technology, China)*
15:50pm -16:10pm	**EMI Evaluation and Structure Optimization of Packages by Deep Neural Network(#1570586248)** *Hang Jin, Er-Ping Li (Zhejiang University, P.R. China)*	**EMC/I Analysis of Miniaturized Bio-Mechanical Sports Wearables (#1570580831)** *Nosherwan Shoaib (Research Institute for Microwave and Millimeter-Wave Studies (RIMMS) & National University of Sciences and Technology (NUST), Pakistan); Syed Narjis Fatima Zaidi (National University of Sciences and Technology (NUST), Pakistan); Ahmed Shafqat (NUST, Pakistan); Hammad M. Cheema (National University of Sciences and Technology (NUST), Pakistan)*
16:10pm -16:30pm	**Application of Perturbation Theory of Non-Linear Systems to an Amplifier Circuit for EMI Analysis（#1570581086）** *Dominik Zupan(Graz University of Technology, Austria)*	**Susceptibility Testing of RF Front End Using Differential-mode Injection Method（#1570583276）** *Xinfu Lu, Guanghui Wei, Xiaodong Pan and Haojiang Wan (Army Engineering University, P.R. China)*
16:30pm -16:50pm	**Modeling of Electromagnetic fault injection（#1570581278）** *Mathieu Dumont (LIRMM, France); Philippe Maurine (LIRMM, Montpellier university, France); Mathieu Lisart (STMicroelectronics, France)*	**A Comprehensive Study of a Bidirectional ESD Protection Device Under Harsh Environment（#1570578534）** *Zhuojun Chen, Zhiqiang Wu, Ming Wu and Wei Peng (Hunan University, P.R. China); Xiangliang Jin (Hunan Normal University, P.R. China); Yun Zeng (Hunan University, P.R. China), Binhong Li, Bo Li(Institute of Microelectronics of Chinese Academy of Sciences, P.R. China)*
16:50pm -17:10pm	**Via Modeling Based on Charge Switching（#1570575296）** *Jian-Min Lu, Tian-Xian Ye, Jun Wang and En-Hui Yan(Xidian University, P.R. China)*	**Industrial Forum** **Microwave power semiconductor chip in chip design test solution** *Baoguo Yang, China Electronics Technology Instruments Co., LTD*
17:10pm -17:30pm	**Electromagnetic Transmission Characteristics of Multi-Scale Fractal Meander-shaped Interconnect Structures for Flexible Chip Applications (#1570574958)** *FANG Ruijie, WANG Xia, ZHANG Yuming, ZHENG Longfei, Wang MengJun (Hebei University of Technology, P.R. China)*	**Industrial Forum** **Using EMC Test Equipment for Side Channel Attacks** *Lars Glasesser, Langer-EMV-Technik GmbH, Germany*
18:30pm -19:10pm	**Banquet Session**	

Technical Sessions – Wednesday Morning, October 23, 2019

Rooms	*Symposium Qiushi Hall* *International Yuan Zheng Hotel*	*Symposium Guiyu Hall* *International Yuan Zheng Hotel*
09:00am – 10:20am	**IC EMC for Avionics and Automotive Applications** *Chair(s):* ***Kamel Abouda**, Mengjun Wang*	**【Special Session】Disruptive Technologies for 5G and EMC – Part I (DL Talks)** *Chair(s):* *Richard Xian-Ke Gao，Liang Zhou*
09:00am -09:20am	**Functional Safety Test Strategy for Automotive Microcontrollers During Electro-magnetic Compatibility Characterization (#1570573106)** *Markus Unger, Günther Fries / Thomas Steinecke(Infineon Technologies AG, Germany); Chetan Waghmare / Ramesh Ramaswamy (Infineon Technologies India Pvt.Ltd.)*	**Modeling and Design of Through-Silicon Vias (TSVs) for Future High Bandwidth Packages(#1570580914)** *Kibeom Kim (KAIST, Korea); **Seungyoung Ahn** (Korea Advanced Institute of Science and Technology, Korea)*
09:20am -09:40am	**The Method of Locating Electromagnetic Radiation Source in Wire Bonded Ball Grid Array Package（#1570575018）** *Guang-Lai Hu, Hang Jin, Tuo-Min Tao and Er-Ping Li(Zhejiang University, P.R. China*	**Heterogeneous 3-D Integration of a Millimeter-wave Transceiver module for 5G and its EMC Applications (#1570576137)** ***Liang Zhou**(Shanghai Jiao Tong University, P.R. China)*
09:40am -10:00am	**Impact of Asymmetrical Shape variations of trapezoidal signal on ICs spectral emission envelope (#1570580511)** *Nicolas Baptistat (University of Bordeaux, France); Kamel Abouda (Emc Ic Expert); Genevieve Duchamp (IMS, France); Tristan Dubois (IMS BORDEAUX, France)*	**Robust Design Based Common-mode Electromagnetic Noise Mitigation for High Speed Electronics (#1570578998)** *Richard **Xian-Ke Gao**(IHPC, Singapore)*
10:00am -10:20am	**Effects of Process-Voltage-Temperature (PVT) Variations on Low-Side MOSFET Circuit Conducted Emission (#1570580948)** *Nicolas Baptistat, Kamel Abouda (AAA Central EMC/ESD, NXP Semiconductors，France); Genevieve Duchamp ， Tristan Dubois (Université de Bordeaux, France)*	**Novel Solutions to Reduce the EM Emissions of Power Switching Circuits (#1570580460)** *Franco Fiori, Matteo Vincenzo Quitadamo and Michele Perotti (Politecnico di Torino, Italy)*
10:20am -10:40am	**Tea Break**	**Tea Break**

Technical Sessions – Wednesday Mroning, October 23, 2019

Rooms	*Symposium Qiushi Hall* *International Yuan Zheng Hotel*	*Symposium Guiyu Hall* *International Yuan Zheng Hotel*
10:40am – 12:20pm	**IC-level Measurement Techniques for EMC** *Chair(s):* ***Sonia Ben Dhia, Li Yan***	**【Special session】Disruptive Technologies for 5G and EMC – Part II** *Chair(s):* ***Richard Xian-Ke Gao, Blaise Ravelo***
10:40am -11:00am	**An Online Method for Load Impedance Extraction for Printed Lines Based on Near Field Measurements (invited, #1570580388)** *Hui Xu and Donglin Su (Beihang University, P.R. China)*	**NGD Circuit Design with Coupled Line EMI (#1570575567)** *Ningdong Li, Fayu Wan and Blaise Ravelo (Nanjing University of Information Science and Technology, P.R. China)*
11:00am -11:20am	**Optimized Algorithm to Reduce the Near-field Measurement Time on FPGA Device（#1570577902）** *Sebastien Serpaud (IRT Saint Exupery & INSA de Toulouse/LAAS/CNRS, France); Alexandre Boyer (INSA TOulouse, France); Sonia Ben Dhia (INSA de Toulouse, France)*	**Reconfigurable Negative Group Delay Circuits Based on Distributed Amplifiers for Guided- and Radiated- Wave Applications (#1570572783)** *Minning Zhu and Chung-Tse Michael Wu (Rutgers, the State University of New Jersey, USA)*
11:20am -11:40am	**Simulation of ICs EME measurement in accord with IEC 61967-4 (#1570582543)** *Wei WU (Independent Engineer, Portugal) Yuejia Wu(Hangzhou Emcmaster Science and Techology Co. Ltd, P.R. China)*	**Low-Speed Signal Integrity Enhancement with Low-Pass Negative Group Delay Function (#1570577145)** *B. Ravelo and F. Wan (Nanjing University of Information Science & Technology, P.R. China)*
11:40am -12:00am	**EMC & ESD Solutions for a LIN Transceiver（#1570581913）** *Kamel Abouda (Emc Ic Expert, USA);Patrice Besse (ESD IC Expert, France); Jean-Philippe Laine and Remy Cathala (NXP Semiconductors, The Netherlands);Matthieu Deloge (NXP Semiconductors, The Netherlands);*	**Sensitivity Analysis of PCB Interconnect and Package with TAN Formalism (#1570576377)** *Z. Xu and J. Fan ((Missouri University of Science and Technology, USA);Olivier Maurice(AFSCET, France)*
12:00am -12:20am	**A new Scheme of Embedded RF Probe（#1570580193）** *Chenghan Wu and Er-Ping Li (Zhejiang University, P.R. China)*	**Application of 2X Method for Components Parameters Extraction (#1570573308)** *Bo-Wen Liu , Shi Yao and Xing-Chang Wei (ZheJiang University, P.R. China)*
12:20pm -12:40pm	**Determining the Emission of a Device from the Near Field of an IC （#1570575241）** *Gunter Langer and Joerg Hacker(langer-emv, Germany)*	
12:40pm -13:30pm	**Lunch**	**Lunch**

Technical Sessions – Wednesday Afternoon, October 23, 2019

Rooms	*Symposium Qiushi Hall* *International Yuan Zheng Hotel*	*Symposium Guiyu Hall* *International Yuan Zheng Hotel*
13:30pm – 15:30pm	**EMC-aware Analog and Mixed Signal Circuits** *Chair(s):* *Adrijan Baric, Hanzhi Ma*	**【Special Session】Simulation Method (IHPC)** *Chair(s):* *Hua-Peng Zhao, En-Xiao Liu*
13:30pm – 13:50pm	**A Criterion for an Optimal Switching of Power Transistors (#1570580491)** *Matteo Vincenzo Quitadamo, Erica Raviola and Franco Fiori (Politecnico di Torino, Italy)*	**A Radar-SLAM Architecture Based on mm-Wave Radar Grid Mapping (#1570572906)** *Ziting Wen (Shanghai JIao Tong University, P.R. China);* ***Dongying Li*** *(Shanghai Jiaotong University, P.R. China); Wenxian Yu (Shanghai Jiao Tong University, P.R. China)*
13:50pm -14:10pm	**Impact of Dead Times on Radiated Emissions of Integrated and Discrete DC-DC Converter (#1570583428)** *Josip Bacmaga and Raul Blecic (University of Zagreb, Croatia); Fabio Pareschi and Gianluca Setti (Politecnico di Torino & University of Bologna, Italy); Adrijan Baric (University of Zagreb, Croatia)*	**Recent Research Progress of Equivalent Electromagnetic Models (#1570574738)** *Huapeng Zhao, Xinhui Zhang, Chaofeng Li, and Sihong Tao(University of Electronic Science and Technology of China, P.R. China)*
14:10pm -14:30pm	**Deep Neural Network based Radiating Source Prediction for IC Electromagnetic Interference(#1570590676)** *Hanzhi Ma and Er-Ping Li (Zhejiang University, P.R. China)*	**A Novel Absorptive Common-mode Filter Based on Wilkinson Power Dividers (#1570581593)** *Si-Ping Gao (National University of Singapore, Singapore);* ***En-Xiao Liu*** *(Institute of High Performance Computing, Singapore)*
14:30pm -14:50pm	**Investigation on the Turn-on Time of RC-Triggered Power Clamps Based on 0.18-μm BCD Process (#1570580671)** *Yifei Zheng (National University of Defense Technical, P.R. China); Xiangliang Jin (Hunan Normal University, P.R. China); Jianfei Wu (National University of Defense Technology, P.R. China); Yang Wang (Xiangtan University, P.R. China); Ang Zhang(Tianjin Binhai Civil-military Integrated Innovation Institutes, Tianjin, China);Hongli Zhang (Tianjin Binhai Civil-military Integrated Innovation Institutes, P.R. China)*	**A Chiral Metamaterial with Asymmetric Polarization Conversion for Visible Light (#1570577010)** *Yu Tian, Zhengyin Li and Qingguo Du (Wuhan University of Technology, P.R. China)*
14:50pm -15:10pm	**Immunity Evaluation of SRAM Chips for SOI and SI Technology (#1570578512)** *Xujing Wu, MengJun Wang (Hebei University of Technology, P.R. China); Jia nfei Wu (National University of Defense Technology, P.R. China); Hong Li Tianjin Binhai Civil-military Integrated Innovation Institutes, P.R. China) Binhong Li (Institute of Microelectronics of Chinese Academy of Sciences, P.R. China); Ning Hao and Jiantou Gao (Institute of Microelectronics of Chinese Academy of Sciences, P.R. China), Hongli Zhang (Tianjin Binhai Civil-military Integrated Innovation Institutes, P.R. China);*	**Topology Comparison of Single-diode Rectifiers: Shunt Diode vs. Series Diode (#1570580492)** *Si-Ping Gao (National University of Singapore, Singapore); Hao Zhang (Nanjing University of Science and Technology & National University of Singapore, P.R. China)*
15:10pm -15:30pm	**Electromagnetic Pattern Extraction and Classification of Integrated Circuit Under Different Operation State (#1570580611)** *Rongquan Chen (China Electronic Product Reliability and Environment Testing Research Institution, P.R. China); Weiheng Shao and Wenxiao Fang (CEPREI Laboratory, P.R. China)*	
15:30pm -15:50pm	**Tea Break**	**Tea Break**

Technical Sessions – Wednesday Afternoon, October 23, 2019

Rooms	*Symposium Qiushi Hall* *International Yuan Zheng Hotel*	*Symposium Guiyu Hall* *International Yuan Zheng Hotel*
15:50pm – 17:30pm	**New Test Methods** *Chair(s):* *Youngwoo Kim, Fang Wenxiao*	**EMS** *Chair(s):* ***Wu Jianfei, Zuo PanPan***
15:50pm -16:10pm	**Research on a New Test Method for Through Silicon Via Channel (#1570576664)** *Hong-lei Ran, Kui Zhang, Jie Huang, Hao Peng (CETC 13, P.R. China)*	**Immunity Model of the Embedded CAN Controller to Conducted Interferences (#1570580623)** *Zhang Dongyao (Information Engineering University, P.R. China); Changlin Zhou (Strategic support force Information Engineering University); Li Shuang, Zhang Zhilong, Yu Daojie and He Kai (Strategic Support Force Information Engineering University, P.R. China)*
16:10pm -16:30pm	**Fundamental Study on Influence of Intentional Electromagnetic Interference on IC Communication(#1570580764)** *Hikaru Nishiyama, Takumi Okamoto, Youngwoo Kim, Daisuke Fujimoto, and Yuichi Hayashi (Nara Institute of Science and Technology, Japan)*	**Transient Response Monitoring and Effect on RF Front-end ICs for Wireless Communication System（#1570572764）** *Chuanbao DU, Congguang Mao and Zhitong Cui (State Key Laboratory of Intense Pulsed Radiation Simulation and Effect, P.R. China)*
16:30pm -16:50pm	**Far-End Crosstalk Mitigation Using Homogeneous Dielectric Substrate in DDR5 (#1570580719)** *Qiang-Ming Cai , Lin Zhu, Xiao-Bo Yu, Liang Zhang, Chao Zhang, Yu-Yu Zhu, and Xin Cao (Southwest University of Science and Technology, P.R. China)*	**Modeling of Small Common-mode Choke for EFT Interference Suppression at Analog Input Port(#1570581103)** *Gao Haizhen, Luo Guangxiao, LIN Hongliang (North China Electric Power University, P.R. China); ZHAO MingMin, JU Yong(China Electric Power Research Institute, P.R. China)*
16:50pm -17:10pm	**End of the session**	

Poster1-Open Forum Session – Tuesday Afternoon, October 22, 2019

Chair: Liming Zhou

October 22,2019,Tuesday 13:30-15:30	
Electric Field Detection for the Safe Distance Between UAV and Power Transmission Line (#1570580931) *Guoping Zou and Lingpeng Dong (Zhejiang University, P.R. China); Jian Ding and Haonan Cao (State Grid Zhejiang Electric Power Corporation Maintenance Branch line, P.R. China); XingChang Wei (Zhejiang University, P.R. China)*	**X-parameter Phase and Load of Nonlinear Devices (#1570585181)** *Qi-ting Lu, Si-Chen Yang, Duo Zhang, Yu-Di Fan and Er-Ping Li (Zhejiang University, P.R. China)*
Simulation of Key Elements in 25Gbps Channel (#1570572768) *Ba Sa, Qunsheng Cao, Zhifeng Lian (NUAA, P.R. China)*	**Analytical Derivations of the TDR Expressions of Lossy Transmission Lines with the Other End Perfectly Matched (#1570575017)** *Jun Zhang, Dong Xu Fu and Miaomiao Bian (Cisco Systems, Inc, P.R. China); Xiao-Ding Cai and Bidyut Sen (Cisco Systems, Inc, USA)*
Electromagnetic Susceptibility and Nonlinearity of Voltage Reference （#1570579368） *Zhihang An (Chinese Academy of Sciences, P.R. China); Binhong Li (Institute of Microelectronics of Chinese Academy of Sciences, P.R. China); Jianfei Wu (National University of Defense Technology, P.R. China); Li-fang YU (Beijing University of Civil Engineering and Architecture, P.R. China)*	**RF IC Susceptibility of VHF transceiver excited from Power terminal with PCI (#1570576425)** *Congguang MAO, Chuanbao DU,Zheng Liu (Northwest Institute of Nuclear Technology, P.R. China)*
Electromagnetic Investigation of Neuromorphic Hardware Based on Metal-oxide Memristors (#1570574680) *Tuomin Tao and Er-Ping Li (Zhejiang University, P.R. China)*	**Spatial resolution measurement of near-field probe by using two adjacent microstrip lines (#1570580645)** *Meizhen Xiao, Weiheng Shao, Wenxiao Fang, Rongquan Chen, Xinxin Tian, Zeyi Li, Lei Wang, Hengzhou Liu, Yulong Wang, Xuecheng Xu, Zhiyuan He and Heng Zhang (CEPREI Laboratory, P.R. China)*
Efficient Evaluation of the Scattered Field Radiated by Transmission Line Cables (#1570581318) *Oussama Gassab and Liang Zhou (Shanghai Jiao Tong University, P.R. China); Wen-Yan Yin (Zhejiang University, P.R. China)*	**SERDES With Dual Output Buffer to Reduce Common Mode Noise (#1570584898)** *Jianquan Lou (CISCO, P.R. China); Alpesh Bhobe (CISCO, USA); Hailong Zhang (CISCO, P.R. China); Xiao Li (Cisco Systems Inc., USA); Yingchun Shu (CISCO, P.R. China)*
Research of Temperature Effect on Electromagnetic Susceptibility of Smart Switch Chip（#1570578528） *Zhenbin Gao and Puhan Wu (Hebei University of Technology, P.R. China); Jianfei Wu (National University of Defense Technology, P.R. China); Hong Li and Hongli Zhang (Tianjin Binhai Civil-military Integrated Innovation Institutes, P.R. China); Binhong Li, Xiaowu Cai and Jiantou Gao (Institute of Microelectronics of Chinese Academy of Sciences, P.R. China)*	**Impact of SOI and SI Technologies on EMC of CAN Controller（#1570578510）** *Xiangqian Li and MengJun Wang (Hebei University of Technology, P.R. China); Jianfei Wu (National University of Defense Technology, P.R. China); Er-Ping Li (Zhejiang University, P.R. China); Hongli Zhang (Tianjin Binhai Civil-military Integrated Innovation Institutes, P.R. China); Binhong Li, Ning Hao and Jiantou Gao (Institute of Microelectronics of Chinese Academy of Sciences, P.R. China)*
New Package Lid For Electromagnetic Radiation Suppression based on CSRR and Interdigital Structure（#1570593918） *Yan Li (China Jiliang University);Erping Li(Zhejiang University)*	**Application Research of Multi-Objective Optimization in Hybrid Energy Storage System for Power Output Fluctuation Suppression in Photovoltaic Generation Station** *Rong Chen(State Grid Jiaxing Power Supply Company); Jialin Yu(State Grid Jiaxing Power Supply Company); Wei Jiang(Southeast University)*

Poster2-Open Forum Session – Tuesday Afternoon, October 22, 2019

Chair: Liming Zhou

October 22,2019,Tuesday 15:30-17:30	
Study of Fields Above Differential Microstrip lines for Probe Characterization Application (#1570581143) *Xinxin Tian (Guangdong University of Technology, P.R. China); Zeyi Li, Rongquan Chen, Meizhen Xiao, Weiheng Shao and Wenxiao Fang (CEPREI Laboratory, P.R. China); Duolong Wu (Guangdong University of Technology, P.R. China); Lei Wang, Hengzhou Liu, Yulong Wang, Xuecheng Xu, Zhiyuan He and Heng Zhang (CEPREI Laboratory, P.R. China)*	**Near-field Shielding Analysis of Coating Materials for IC-level Shielding (#1570580958)** *Hyun Ho Park (The University of Suwon, Korea); Yoon-Hyun Kim and Se Young Jeong (Ntrium Inc, Korea)*
An ICIM-CI Model Based IC EMS Evaluation Method for DSP IC in MMC-HVDC System (#1570579849) *Yidong Tian (Xi'an Jiaotong University & Politecnico di Milano, P.R. China); Wenjie Chen and Xu Yang (Xi'an Jiaotong University, P.R. China)*	**Investigation of Tone Reservation-based PAPR Techniques for Improving Power Amplifier Efficiency (#1570559215)** *Congzheng Han (Chinese Academy of Sciences, P.R. China); Simon Armor (University of Bristol, United Kingdom (Great Britain))*
Design of an Axial Mode Wideband Helical Dielectric Resonator Antenna for 5G Applications (#1570579251) *Zhiwei Song, Hongxing Zheng and MengJun Wang (Hebei University of Technology, P.R. China); Yan Li (China Jiliang University, P.R. China); Yongjian Li (Hebei University of Technology, P.R. China); Er-Ping Li (Zhejiang University, P.R. China)*	**Research on NFS Test Method of An Embedded CPU (#1570580279)** *Hongli Zhang (Tianjin Binhai Civil-military Integrated Innovation Institutes, P.R. China); Jianfei Wu (National University of Defense Technology, P.R. China); Puhan Wu (Hebei University of Technology, P.R. China); Yafei Li and Hong Li (Tianjin Binhai Civil-military Integrated Innovation Institute, P.R. China); Xujing Wu (Hebei University of Technology, P.R. China)*
Research on Radiation Emission of CPU Thermal Design (#1570580254) *Yafei Li, Hongli Zhang (Tianjin Binhai Civil-military Integrated Innovation Institutes, P.R. China); Jianfei Wu (National University of Defense Technology, P.R. China); Hong Li and Ang Zhang (Tianjin Binhai Civil-military Integrated Innovation Institute, P.R. China)*	**Novel Sensor Applied on Dust Measurement for Integrated Circuits(#1570588853)** *Tao Song (Hebei University of Technology, P.R. China); Panpan Zuo (HeBei University of Technology, P.R. China)*
IGallery Electromagnetic Sensitivity Experiment Methods Research (#1570535932) *Zhang Hai-long,Zou Xiang-xiang,Xie li-peng,Zhao zhen,Mu dong-lei (BOE Technology Group Co., Ltd., P.R. China)*	**A Method for Dealing with Nonlinear Problems in Electronic Packaging System(#1570590202)** *Duo Zhang, Er-Ping Li, Sichen Yang, Qiting Lu and Yudi Fan (Zhejiang University, P.R. China)*
An Efficient Method of Calculating Inductance Using Near-Field Data(# 1570591064) *Zhaoyang Feng,chengming Wang,Quankun Chen,Er-Ping Li(Zhejiang University, P.R. China)*	**Nano-magnetodielectric materials for microwave applications（#1570581019）** *Atul Thakur (Centre of Nanotechnology, Amity University Haryana, India); Preeti Thakur (Amity University Haryana, India); Ajay Kishore (Amity University Haryana, India);Lucky Krishnia (Centre of Nanotechnology, India)*
Study on Harmonic Spur Characteristics of AlGaN/GaN HEMT PA at Different Temperatures(#1570590024) *Ruizhen Wang and Wen-Yan Yin (Zhejiang University, P.R. China); Yazhou Chen (National Key Laboratory on Electromagnetic Environment Effect, P.R. China); Jixin Chen (Science and Technology on Electronic Information Control Laboratory, P.R. China); Liang Zhou (Shanghai Jiao Tong University, P.R. China)*	**A high-precision thermal imaging approach based on Bayesian inference for EMC diagnosis（#1570593134）** *Ning Alex Chu (Zhejiang University & Hangzhou, P.R. China); Sha Zhu (Institute of Beijing Remote Sensing Information, P.R. China); Dingxin Luo (Guangzhou Metro Group co ltd, P.R. China); Yaochun Hou and Dazhuan Wu (Zhejiang University, P.R. China)*

INSTRUCTIONS TO ORAL & POSTER PRESENTERS

1. Poster Presentation

Please register at the Registration Desk before proceeding to locate your assigned poster board. To locate your assigned poster board, look for the board marked with your Paper ID.

Prepare your poster

Each presenter is provided with a 2.4 meter high by 1 meter wide poster board.
The presentation must cover the same material as the paper.
Place the title of your paper and your paper number prominently at the top of the poster to allow viewers to identify your paper easily. Indicate 1) the paper's identification number, 2) title, and 3) authors' names.
Highlight the authors' names, e-mail and address information in case the viewer is interested in contacting you for more information.
You have complete freedom in displaying your information in figures, tables, text, photographs, etc in the poster.
Include the background of your research followed by results and conclusions. A successful poster presentation depends on how well you convey information to an interested audience.

Set-up Your Poster

Posters should be set up an hour earlier for the respective Interactive Forum sessions .
Please make sure that your paper number is clearly visible on your poster board.
Presenters are required to be at their posters during their scheduled Open forum session.
Tapes and other materials are available at the Information Desk, nearby the poster boards.

Remove Your Poster

Posters must be removed after the respective Open Forum sessions within half an hour.
Posters remaining after these times will be removed. Organizer will not be responsible for posters and materials left on poster boards after the stated hours.

Information Desk

Staff at the Information Desk will be available to assist you with location and other on-site needs. Tapes and scissors will be available for your use. If you have special needs for your poster presentation, please bring those supplies with you to the meeting.

2. Oral Presentation

Prepare Your Presentation

Each oral presentation is limited to 20 minutes including questions and answers. Length of presentation material should be in accordance to your time allotted. You are requested to load your Power Point presentation materials before the session starts.

Determine Your Audio Visual Needs

All meeting rooms are equipped with the following audio-visual equipment:
1-LCD Projector
1-Windows-based PC
1-Screen
1-Laser Pointer

The computers in the meeting rooms are being provided to Windows-based PC users. The PC will be configured with Microsoft Windows operating system as well as with Microsoft Office.

Give Your Presentation

Be considerate of the other speakers and audience by staying within your allocated time. The allocated time for your presentation includes a discussion and changeover to the next speaker. Session Chairs will hold you to the allotted time. This is essential to ensure adequate time for questions and discussion as well as adherence to the schedule.
Please discuss the same materials as reported in your paper submission.

Please store your presentation material to the computer before the session starting. At the end of the meeting, all presentation files will be destroyed.

PIENARY TALK

Plenary Talk I

TITLE	**Technology trends and Electromagnetic Compatibility of Integrated Circuits**
TIME	8:30am-12:00am, October 21
VENUE	International YuanZheng Hotel ZJU
SPEAKER	**Etienne SICARD** NSA, University of Toulouse, France

BIOGRAPHY :Prof. **Sicard** is currently a professor in the Department of Electrical and Computer Engineering at INSA, an engineering school part of the University of Toulouse, France. He is associate researcher at IRIT laboratory, and research director at LURCO laboratory. Granted the Monbusho scholarship award, he conducted post-doctoral studies at Osaka University, Japan (1988-1989). He received a B.S degree and a PhD in Electrical Engineering from the University of Toulouse, France, in 1984 and 1987 respectively. He was elected Distinguished IEEE Lecturer of the EMC society for 2006 -2007.

Professor Sicard has authored or co-authored over 20 books, 10 commercial software packages (Microwind, IC-EMC, vocalab, Diadolab) and more than 250 technical papers in a many areas of electrical engineering, including nano-scale CMOS technology, integrated circuit design automation and digital signal processing for speech therapy. He is the founder of EMC Compo international workshop (www.emccompo.org) focused on Electromagnetic Compatibility of Integrated Circuits.

The International Campus Zhejiang University

Plenary Talk II

TITLE	**Antenna-in-Package (AiP) Technology：The Key to the Success of Millimeter-wave 5G**
TIME	8:30am-12:00am, October 21
VENUE	International YuanZheng Hotel ZJU
SPEAKER	**ZHANG Yueping** FIEEE Nanyang Technological University, Singapore

ABSTRACT: Wireless communications advance rapidly towards the fifth generation (5G), which promises to transform the way we interact with our world over the next several years by enabling fast response time, Gbps delivery, and the Internet of Things (IoT). To take the 5G vision a reality, antenna-in-package (AiP) technology has been recognised as the key to the success of 5G, especially at millimetre-wave frequencies. In this talk, I shall first discuss four basic aspects of AiP technology including design, fabrication, testing, and applications. I shall then give an AiP example designed in an advanced fan-out wafer level packaging for 5G user equipment. Finally, I shall draw the conclusion and identify future direction to further advance AiP technology.

BIOGRAPHY

ZHANG Yueping is a full Professor with the School of Electrical and Electronic Engineering at Nanyang Technological University, Singapore, a Distinguished Lecturer of the IEEE Antennas and Propagation Society (IEEE AP-S), a Member of the IEEE AP-S Paper Award Committee, and a Fellow of IEEE.

Prof. ZHANG was a Member of the IEEE AP-S Field Award Committee (2015-2017), an Associate Editor of the IEEE Transactions on Antennas and Propagation (2010-2016), and the Chair of the IEEE Singapore MTT/AP joint Chapter (2012). Prof. ZHANG was selected by the Recruitment Program of Global Experts of China as a Qianren Scholar at Shanghai Jiao Tong University (2012). He was awarded a William Mong Visiting Fellowship (2005) and appointed as a Visiting Professor (2014) by the University of Hong Kong.

Prof. ZHANG has published and accepted numerous papers, including two invited and one regular papers in the Proceedings of the IEEE and one invited paper in the IEEE Transactions on Antennas and Propagation. He is probably the first and only Chinese radio scientist who has managed to publish a historical article in an English learned journal such as IEEE Antennas and Propagation Magazine. He holds 7 US patents. He received the Best Paper Award from the 2nd IEEE/IET International Symposium on Communication Systems, Networks and Digital Signal Processing, July 18–20, 2000, Bournemouth, U.K., the Best Paper Prize from the 3rd IEEE International Workshop on Antenna Technology, March 21–23, 2007, Cambridge, U.K., and the Best Paper Award from the 10th IEEE Global Symposium on Millimetre-Waves, May 24–26, 2017, Hong Kong, China. He received the prestigious IEEE AP-S Sergei A. Schelkunoff Prize Paper Award in 2012.

Prof. ZHANG has made pioneering and significant contributions to the development of the antenna-in-package (AiP) technology that has been widely adopted by chipmakers for millimetre-wave applications. His current research interests include the development of antenna-on-chip (AoC) technology and characterization of chip-scale propagation channels at terahertz for wireless chip area network (WCAN).

Plenary Talk III

TITLE **2.5D/3D Terabyte/s Bandwidth HBM (High-bandwidth Memory Module) Designs for Artificial Intelligence (AI) Computers**

TIME 8:30am-12:00am, October 21

VENUE International YuanZheng Hotel ZJU

SPEAKER **Joungho Kim**
FIEE
KAIST, (Korea Advanced Institute of Science and Technology)

ABSTRACT : Recently, we are facing a newly emerging technology and industrial transition, named as 4th Industrial Revolution, which is based on artificial intelligence (AI), big data platform, and cloud system. Especially, emergence of artificial intelligence is aided by availability of big data, deep learning algorithms, and high performance GPU computing machines. Accordingly, demands for advanced performance of terabyte/s bandwidth computing performance are rapidly increasing. However, continuously growing gaps between GPU performance and DRAM I/O data bandwidth are becoming the critical barrier to limit the AI computing performance. In order to meet the pressing needs of higher data transfer bandwidth, we are proposing High Bandwidth Memory (HBM) solutions using TSV, Si interposer technologies, and stacked memory architectures.

In this presentation, we will introduce the basic approaches and designs of the terabyte/s bandwidth 2.5D HBM (High-bandwidth Memory Module), which will be useful for artificial intelligent servers. Especially, we will talk about the signal and power integrity design issues, and analysis results of TSV and Si interposer channels, including GPU-DRAM channels, and high-speed serial channels. In addition, we will discuss PDN (power Distribution Network) impedance designs, and decoupling capacitor schemes as well. Then, we will propose next generation HBM architectures using active interposer approaches, and equalization schemes to even increase the bandwidths with lower power consumptions. Finally, we will suggest next generation computer architectures to meet the increasing performance needs of AI serves with reduced power consumptions.

BIOGRAPHY

Dr. **Joungho Kim** received B.S. and M.S. degrees in electrical engineering from Seoul National University, Seoul, Korea, in 1984 and 1986, respectively, and Ph.D degree in electrical engineering from the University of Michigan, Ann Arbor, in 1993. In 1996, he moved to KAIST (Korea Advanced Institute of Science and Technology). He is currently professor at electrical engineering department of KAIST. Since joining KAIST, his research centers on EMC modeling, design, and measurement methodologies of 3D IC, TSV, Interposer, System-in-Package, multi-layer PCB, and wireless power transfer (WPT) technologies. Especially, his major research topic is focused on chip-package-PCB co-design and co-simulation for signal integrity, power integrity, ground integrity, timing integrity, and radiated emission in 3D IC, TSV and Interposer. He has authored and co-authored over 527 technical papers published at refereed journals and conference proceedings. He published a book, “Electrical Design of Through Silicon Via,” by Springer in 2014. Currently, he is the director of Samsung-KAIST Industry Collaboration Center.

Dr. **Joungho Kim** was Conference chair of IEEE EDAPS 2015 in Seoul. And he was the conference chair of IEEE WPTC (Wireless Power Transfer Conference) 2014, held in Jeju Island, Korea. And he was the symposium chair of IEEE EDAPS Symposium 2008. He is also an associated editor of the IEEE Transactions of Electromagnetic Compatibility. He received Outstanding Academic Achievement Faculty Award of KAIST in 2006, KAIST Grand Research Award in 2008, KAIST International Collaboration Award in 2010, and KAIST Grand Research Award in 2014, respectively. He was appointed as an IEEE EMC society distinguished lecturer in a period from 2009-2011. He received Technology Achievement Award from IEEE Electromagnetic Society in 2010. Currently, he is an IEEE fellow.

Plenary Talk IV

TITLE	**A chronicle of 22 years in microcontroller EMC business**
TIME	8:30am-12:00am, October 21
VENUE	International YuanZheng Hotel ZJU
SPEAKER	**Thomas Steinecke** Infineon Technologies, Germany

ABSTRACT : EMC on IC level was an emerging topic in the 1990s when system designers in EMC-critical areas like automotive started complaining about too high electromagnetic IC emission which caused them to spend additional money on PCB countermeasures. During that time, several national EMC test setup proposals on IC-level were submitted which finally have been integrated in the international standards IEC 61967 and IEC 62132.

After several years of microcontroller design, I stepped into EMC in the year 1997. I spent a lot of effort on the emission analysis of automotive microcontrollers including design and validation of several test chips. Soon we extended our EMC validation portfolio by establishing immunity test environment. We also recognized the need of developing pre-silicon behavioral emission models for large-scale ICs.

My EMC life was accompanied by many years of fruitful collaboration with other semiconductor vendors, automotive Tier1s and OEMs, universities and research institutes. A highlight in the beginning of the new millennium was the introduction of dynamic voltage and current sensors into CMOS test chips. Following up this collaboration with INSA I stepped into the famous series of EMC Compo conferences founded by our dear friend Etienne Sicard. Over time, we introduced – together with other microcontroller vendors – on-chip EMC optimization measures like improved decoupling concepts, scalable pads and clock modulation.

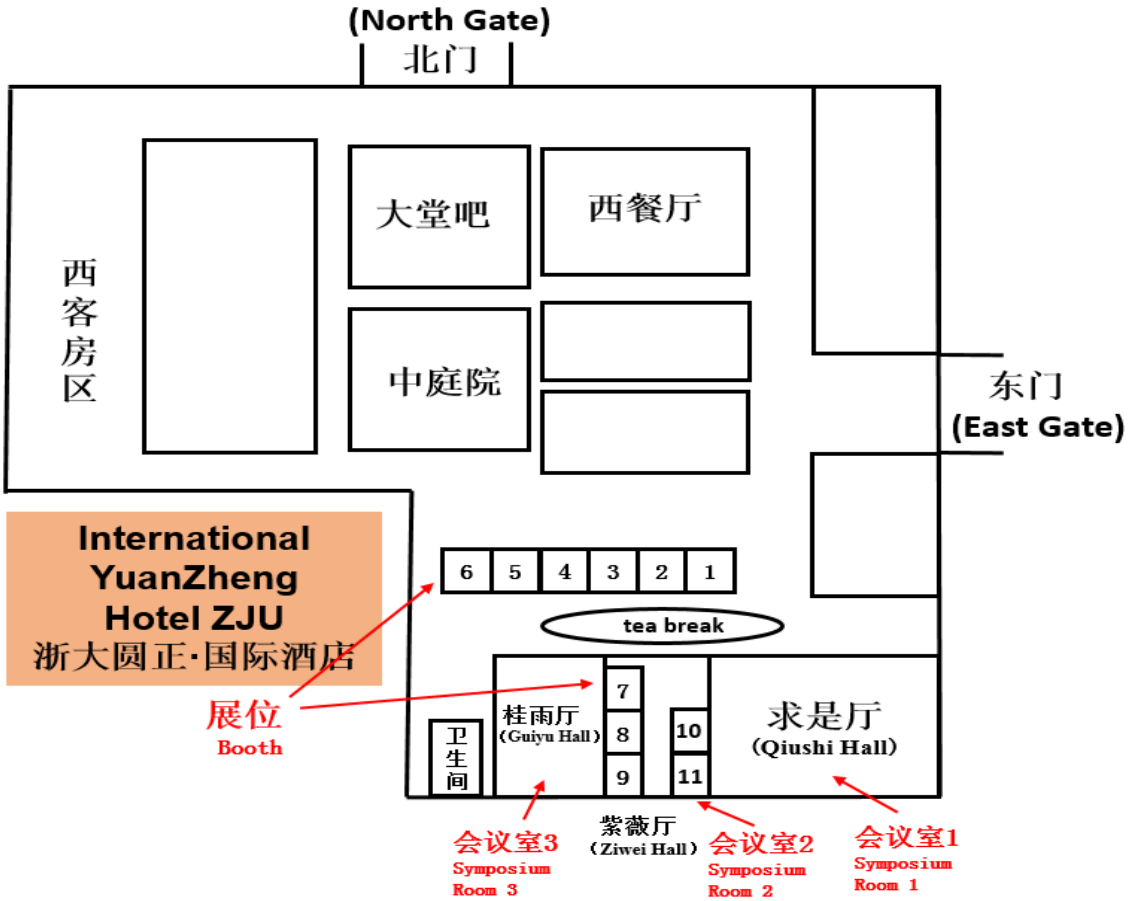
After ten years of self-driven modeling activities, the first EDA vendor provided a commercial modeling and simulation tool. The benefit of that EDA solution was the layout-based models, thus offering design signoff capabilities. But it did not provide a satisfying solution for very early pre-netlist-based emission feasibility studies. This gap motivated me to create an own tool which allows such studies on SoCs using basic activity data for the functional modules. Although we advanced quite well on simulating electromagnetic emission of complex ICs, there are still modeling gaps in the area of robustness, meaning DPI and pulse immunity as well as powered ESD.

My countdown for leaving the EMC stage is running. I am sure that our next generation engineers are eager to further disenchant the “black magic” in the EMC domain. EMC-related topics like fail-safe operation of autonomous cars are relying on robust IC designs. Hence immunity simulation of complex ICs will become a high-priority EMC challenge within the next years. I encourage you to dive deeper into this fascinating world of EMC and help to make our products of the future smart and safe.

BIOGRAPHY

Thomas Steinecke received his diploma on technical computer science in 1984 from the Technical University of Darmstadt, Germany. In the same year, he joined the Siemens Semiconductor Department in Munich, which spun off as Infineon Technologies in 1999. Mr. Steinecke spent several years in microcontroller design before he became responsible for the electromagnetic compatibility of automotive microcontrollers in 1997. Since then, he researched into emission and susceptibility measurement techniques, chip and package design improvement, modeling and simulation. He published many papers and collaborated with customers, universities and research institutes within several national and international funding projects. His team designed a series of EMC test chips introducing on-chip oscilloscopes for dynamic voltage and current measurements. He developed advanced emission modeling techniques for very large-scale integrated circuits which have meanwhile been adapted in commercial tools. The actual focus of his work is on EMC-optimized design and EMC simulation of automotive microcontrollers in 28 nm technology and beyond.

TECHNICAL EXHIBITIONS



Compliance Direction Systems Inc.
南京容向测试设备有限公司

Compliance Direction, meaning "a focus on the direction of electromagnetic compatibility (EMC)", aims to provide customers with a comprehensive EMC solution. **Nanjing Rongxiang**,a professional EMC systems integrator, covers the turnkey projects of EMC laboratories in various industries such as vehicles and auto parts, military standards, integrated circuits, and rail transit. **Rongxiang Testing** (Nanjing Rongce), covering an area of 20,000 m^2, is a leading supplier of EMC testing services for new energy auto parts, an EMC testing and accreditation laboratory of well-known auto companies such as Ford Motor Company and Zhengzhou Yutong Bus Co. Ltd, and a designated laboratory for high-voltage components of new energy vehicles.
The company has nearly 20 professional EMC laboratories, including the world-leading new energy vehicle motor loading test chamber, a new energy vehicle electric drive assembly system and hub motor loading test chamber, China's largest vehicle electromagnetic reverberation chamber, and an EMC test chamber for electric vehicle charging coupling system that meets the latest international standards.

The company has strong technical strength, a highly educated and highly qualified team of experts, extensive research and practical experience in testing technology, and has participated in the drafting of EMC testing technology and national standards for the EMC of new energy automotive parts.

Germany's Langer EMV-Technik GmbH specializes in the research, development and production of EMC test equipment. It has a history of long-term cooperation with world-leading semiconductor manufacturers such as NXP, Infineon, Freescale, Toshiba, Samsung, etc. It is recognized as a leading supplier of integrated circuit EMC test systems.As the sole partner of Langer IC EMC products in China, Rongxiang is responsible for product sales and technical services. At the same time, Nanjing Rongce is the sole designated calibration laboratory for Langer products in China.

容向，寓意为"专注于电磁兼容方向"，为客户提供全面的EMC解决方案。南京容向，专业的EMC系统集成商，覆盖汽车及零部件、军标、集成电路、轨道交通等各个行业的电磁兼容实验室交钥匙工程。容向检测（南京容测），占地2万平米，领先的新能源汽车部件电磁兼容测试服务供应商，美国福特、宇通客车等知名车企电磁兼容检测认可实验室和新能源汽车高压部件指定实验室。

公司拥有近 20 个专业电磁兼容试验室，包括具有世界领先水平的新能源汽车电机加载试验室、新能源汽车电驱总成系统和轮毂电机加载试验室、国内最大的整车电磁混响室、符合最新国际标准的电动汽车充电耦合系统电磁兼容试验室等。公司技术力量雄厚，拥有一支高学历高素质的专家队伍、具有丰富的检测技术研究及实践经验，参与了电磁兼容测试技术及新能源汽车部件电磁兼容国家标准的起草工作。

德国 Langer EMV-Technik GmbH 专业从事电磁兼容测试设备的研究、开发和生产，与 NXP，Infineon，Freescale，Toshiba，Samsung 等世界领先的半导体厂家长期合作，是全球公认的集成电路 EMC 测试系统领先供应商。容向公司作为 Langer 公司 IC EMC 产品在中国区的唯一合作伙伴，负责产品的销售、技术服务等，同时，南京容测是 Langer 产品中国区唯一指定校准实验室。

Email: info@emcdir.com
Website: http://www.emcdir.com http://www.emcdir.cn

China Electronics Technology Instruments Co., Ltd (CETI)
中电科仪器仪表有限公司

China Electronics Technology Instruments Co., Ltd (CETI) was established in May 2015, headquartered in Qingdao, Shandong province.

Leveraging the resources of The 40th Institute and The 41st Institute of China Electronics Technology Group Corporation, CETI has a professional team engaged in the research and development of electronic measurement instruments, automatic test systems, microwave & millimeter-wave components and other electronic products. CETI operates many professional national organizations, such as National Key Laboratory for Science and Technology on Electronic Test & Measurement, National Defense Opto-Electronic Primary Metrology Laboratory, National Quality Supervision & Test Center for Electronic Instrument, Research & Application Center for National Defense Automatic Test Technology, Integrated Research & Development Center for Electronic Test and Support Equipment, National Quality Supervision & Test Center for Connectors and Relays in Information Industry etc., which enable the company with powerful capability of research & development, manufacturing, test and verification.

中电科仪器仪表有限公司（简称“中电仪器”）于 2015 年 5 月成立，本部位于青岛。

以中国电科第四十、四十一研究所为核心，中电仪器拥有一支从事电子测量、自动测试、高端元器件以及各类电子应用产品研究、开发、设计的专业技术队伍，设有“电子测试技术重点实验室”“国防科技工业光电子一级计量站”“国家电子仪器质量监督检验中心”“国防科技工业自动化测试技术研究应用中心”“中国电科综合电子测试与保障装备研发中心”“信息产业接插件继电器质量监督检验中心”等专业机构，具有较强的研发、生产、测试和试验验证能力，在我国电子测量仪器行业居龙头地位。

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URL：http://www.ceyear.com
Address：No. 98 Xiangjiang Road, Qingdao Economic and Technological Development Zone, Shandong Province.(山东省青岛市经济技术开发区香江路 98 号)

Zhejiang Noyetec Technology Co.,Ltd
浙江诺益科技有限公司

Noyetec was born in the beautiful banks of the Qiantang River in Hangzhou, headquarters is located in the "Paradise Valley" of the national high-tech development zone, Hangzhou, the company is a product-creative-led national high-tech enterprise, specializing in EMC&RF measurement laboratory and test system development and marketing (Electromagnetic Compatibility Laboratory, Automotive New Energy Laboratory, Military Industry Laboratory, RF Radio Frequency & Wireless Communication Laboratory, 5G Antenna Microwave Testing System, IC Integrated Circuit Testing System, Basic General Equipment Testing System, and so on).We provide thorough anechoic room construction, EMC&RF system integration, CNAS accreditation consulting, EMC development rectification and after-sales service.We are to become the leader of international EMC testing laboratory one-stop building services.

As a member of the working group of EMC Standardization Committee, Noyetec actively participates in EMC standardization work at home and abroad, and promotes standard implementation and industry application. Noyetec is a leading supplier of professional EMC&RF laboratory solutions, we have our own product research and development centers, research institutes and production plants as well as strong technical force. Noyetec has established close technical cooperation with the Chinese Academy of Sciences, Tsinghua University, Tongji University, Taiwan's Industrial Technology Research Institute and other research institutions. Noyetec have also established a comprehensive strategic partnership with the China Aerospace Science and Technology Corporation and China electronics technology group.

Meanwhile Noyetec is subsidiary of Novtec, whose founding management team has managing experience in Fortune 500 and public company, which brings extensive experience in management and marketing. Company based in East China, and our business spreads all over the world. We now have our representative office in Hong Kong, Germany, the United States, Japan, Taiwan, Shanghai, Beijing, Tianjin, Guangdong, Xi'an and Chongqing.

浙江诺益科技有限公司（Noyetec 诺益）诞生于美丽的杭州钱塘江畔，总部位于有“天堂硅谷”之称的杭州国家级高新技术开发区，公司是一家以产品技术创新为主导的国家高新技术企业，政府重点科创型入库企业，专业从事 EMC 电磁兼容&RF 射频无线通讯测量实验室建设与测试系统的研发和销售（涵盖电磁兼容实验室、汽车新能源实验室、军工实验室、RF 射频&无线通讯实验室，5G 天线微波测试系统、IC 集成电路测试整改系统、基础通用设备测试系统等），并为客户提供完善的暗室设计建设、EMC&RF 射频无线通讯系统集成、CNAS 认可咨询、EMC 研发整改及售后服务，争做国际 EMC 检测领域实验室建设一站式服务的领航者。

诺益 EMC 测试技术研究所作为 EMC 标准化委员会工作组成员，积极参与国内外 EMC 标准化工作，推动标准实施和行业应用。诺益作为业内领先的专业 EMC&RF 射频实验室解决方案供应商，拥有产品研发中心，研究院和生产工厂，拥有多项发明和实用新型专利和软件产品著作权，技术力量雄厚，与中国科学院、清华大学、同济大学、湖南大学、台湾工研院等科研机构，建立了紧密的技术合作关系，并与中国航天科技集团、中国电子科技集团建立了全方面的战略合作关系。

同时诺益也是诺威特集团的控股子公司，创始管理团队拥有世界 500 强及上市公司工作管理履历，拥有丰富的管理和市场经验。公司立足华东、面向全国，服务全球，在香港、德国、美国、日本、台湾、上海、北京、天津、广东、西安、重庆设有代表处。

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Everfine EMC Technology Co.,Ltd
杭州远方电磁兼容技术有限公司

EVERFINE EMC TECHNOLOGY CO.,LTD is a holding subsidiary of EVERFINE (stock code: 300306，which is a EMC total solution service provider, which is specialized in R&D, design, manufacturing, sales, technology service of EMC instruments, EMC laboratory &test systems. EVERFINE is the National torch plan high-tech enterprises which done the earliest independent research and development of a full range of EMC products，has undertaken projects of National 863 programs 、Provincial and municipal major science & technology projects for many times. EVERFINE owns more than 260 patents，In 2013 and 2014, EVERFINE was judged by Forbes as China's Most Potential Listed Companies.

After years of technical accumulation and development, EVERFINE's EMC products have been exported to more than 70 countries and regions around the world, widely used in automotive electronics, LED & lighting, household appliances, power tools and other fields. Clients include National Institute of Metrology China, Tsinghua University,Samsung, Panasonic, Haier, Gree, TCL,and other famous international testing and certification institutions, multinational corporations, research institutes and universities

With strong technical strength and first-class development concept, EVERFINE has been committed to EMC professional business for a long time, and provides customers with quality products, comprehensive solutions and professional technical services.

Go far by benefitting the world

杭州远方电磁兼容技术有限公司是远方信息（股票代码：300306）控股子公司，是专业从事电磁兼容（EMC）仪器和 EMC 实验室&测试系统的研发、设计、制造、销售、技术服务于一体的整体解决方案供应商。远方是国内最早独立进行全系列电磁兼容产品研发的国家火炬计划重点高新技术企业，多次承担国家高技术研究发展计划（863 计划）课题和省市级重大科技攻关项目，拥有专利 260 余项，2013 年和 2014 年连续两年被福布斯评为中国最具潜力上市公司 100 强。

经过多年的技术积累和发展，远方公司的 EMC 产品已远销全球 70 多个国家和地区，广泛应用于汽车电子、LED 和照明、家用电器、电动工具等领域。客户包括中国计量院、清华大学、三星、松下、海尔、格力、TCL 等著名国际检测认证机构、跨国企业、研究所和高等院校。

远方公司以雄厚的技术实力、一流的发展理念，长期致力于 EMC 领域事业，并为客户提供优质的产品、全面的解决方案和专业的技术服务。

精准益世界，精进致远方 Go far by benefitting the world

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ROHDE&SCHWARZ
Make ideas real

Rohde & Schwarz （China）Technology Co., Ltd.

罗德与施瓦茨（中国）科技有限公司

The Rohde & Schwarz technology group develops, produces and markets innovative communications, information and security products for professional users. The group's test and measurement, broadcast and media, aerospace | defense | security, networks and cybersecurity business fields address many different industry and government-sector market segments. On June 30, 2018, Rohde & Schwarz had approximately 11,500 employees. The independent group achieved a net revenue of approximately EUR 2 billion in the 2017/2018 fiscal year (July to June). The company has its headquarters in Munich, Germany. Internationally, it has subsidiaries in more than 70 countries, with regional hubs in Asia and America.

罗德与施瓦茨公司作为一家独立的国际性科技公司，为专业用户开发、生产以及销售创新的通信、信息和安全产品。公司主要业务领域包括测试与测量、广播电视与媒体、航空航天|国防|安全、网络信息安全并覆盖多个不同行业及政府市场分支。截止到 2018 年 6 月 30 日，罗德与施瓦茨公司员工人数约为 11, 500 名。2017/2018 财年（2017 年 7 月至 2018 年 6 月），集团净营收约 20 亿欧元。公司总部设在德国慕尼黑。全球范围内，公司在 70 多个国家设有子公司并在亚洲和美国设有区域中心。

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Rflight Communication Electronic Co., Ltd.
南京纳特通信电子有限公司

Founded in 2004, Rflight Communication Electronic Co., Ltd. is a high-new technology enterprise dedicated to R&D, manufacturing, sales and service of RF power amplifiers, PIM testing systems, wireless communication channel emulator, wireless OTA testing systems, and switch matrix. Product applications including EMC, space research, high energy physics, wireless communication, metrology testing and medical equipment etc.

The company is located in Nanjing Jiangning Technology Development Zone, with overseas offices in Germany, India, USA and domestic offices, R&D center, open-lab in Beijing, Shanghai, Xi'an, Chengdu and Guangdong.

Our company has various production & testing equipment as well as its own environment lab including CNC center, shielding chamber, high-low temperature equipment, vibration desk etc.

Our major products including various power amplifiers, PIM testing systems, Switch matrixes etc. Our Power Amplifiers freq. span from 4kHz-100GHz, power from 1Watt-500kWatt.

南京纳特通信电子有限公司成立于 2004 年，是一家专注从事射频功率放大器、 无源互调测试系统、天线测试系统、无线信道仿真系统和 OTA 测试系统研发、制造、销售、服务的高新技术企业。应用领域包括电磁兼容、空间探索、高能物理、无线通信、计量检测和医疗设备等。

公司坐落于南京市江宁技术开发区内，现有员工 140 余人，其中本科以上学历占 60%以上。在德国、印度、美国设有海外办事处，在北京、上海、西安、成都和广东建有办事处、研发中心和开放实验室。公司拥有一批经验丰富、技术精深的研发团队，具备不断创新的精神，立足国内行业前沿的同时更关注国际领先射频功放技术的发展动态，致力于用优良的射频功放产品和系统满足顾客和市场的需求。

公司主要产品包括射频功率放大器、无源互调测试系统、功率容限测试系统、天线测试系统和开关矩阵等。功放频率范围：4kHz-100GHz，功率范围：1W-500kW。

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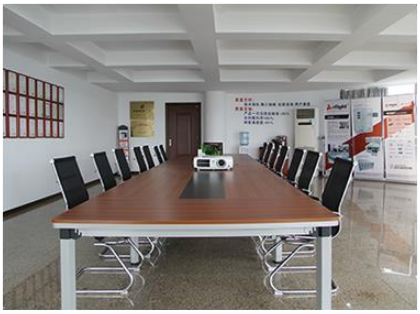

Shanghai Beixin semiconductor technology co., Ltd.
上海北芯半导体科技有限公司

Shanghai Beixin semiconductor technology co., LTD., founded in 2013 in Shanghai pudong zhangjiang high-tech park, has the advanced semiconductor packaging and testing, analysis, validation, and other equipment and experienced work team, for the IC design companies, research institutes, and manufacturers to provide quick and professional chip packaging, RA reliability test, FIB, competitive analysis, now 55 (Y2019/01) have patents, ISO9001:2008/2015 authentication, CNAS (China national laboratory accreditation), integrated circuit research and development of public service platform institutions such as authentication, Help customers save more time and cost of research and development, is a professional semiconductor integrated circuit technology service high-tech enterprises.

上海北芯半导体科技有限公司 2013 年成立于上海浦东张江高科技园区, 拥有先进的半导体封装、测试、分析、验证等设备及经验丰富的工作团队，为 IC 设计公司、科研院所以及生产厂商提供快速且专业的芯片封装、可靠性 RA 测试、FIB、竞争力分析，目前(Y2019/01)拥有专利 55 项、ISO9001:2008/2015 认证、CNAS(中国实验室认证）、集成电路公共研发服务平台等机构认证，帮助客户节省更多的研发时间和成本，是一家专业的半导体集成电路科技服务型高科技企业。

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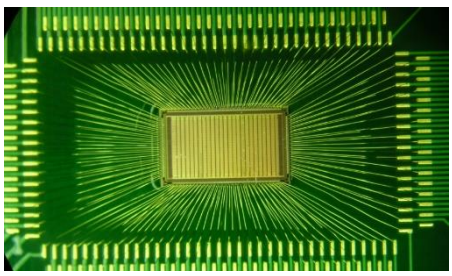
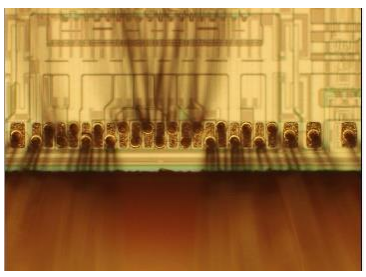
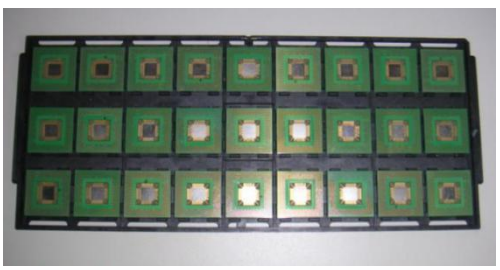
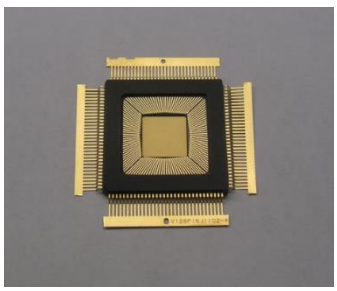
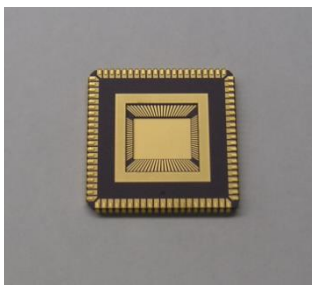
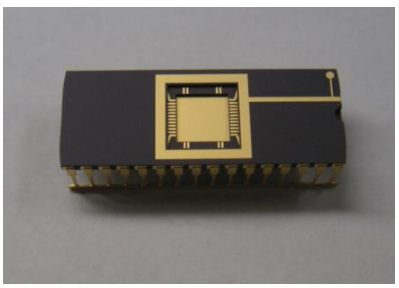
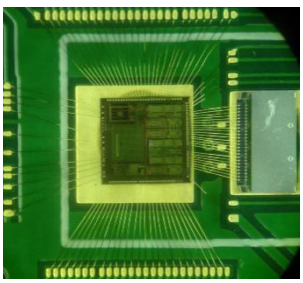

Suzhou 3ctest Electronics Co., Ltd.
苏州泰思特电子科技有限公司

Suzhou 3ctest Electronics Co., Ltd. was founded in 2004, located in Suzhou New District (SND), a national level high and new tech development zone. Since its establishment, the company has been specializing in testing technology research and development of Electromagnetic Compatibility (EMC) and Complicated Electromagnetic Environment Effects, and has become a leading R&D, production, sales and service integrated company in the industry.

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Chengdu office, Tel: +86 28 8532 7800

苏州泰思特电子科技有限公司创建于 2004 年，位于国家级开发区——苏州高新区。自成立以来专业致力于电磁兼容（Electromagnetic Compatibility）测试仪器及复杂电磁环境效应（Electromagnetic Environment Effect）试验测试技术研究和新产品开发，是一家集研发、生产、销售和服务为一体的高新技术企业。

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EMC COMPO: THE PAST, PRESENT & FUTURE

1st EMC COMPO 1999 in INSA/Toulouse, France

The ***First International Workshop on Electromagnetic Compatibility of Integrated Circuits*** (**EMC Compo 1999**) was kicked off in INSA Toulouse, Toulouse, France, Jan. 14-15, 1999, in French. General chair: Etienne Sicard, INSA/Toulouse, France

EMC COMPO 2000 in Toulouse, France

The 2nd EMC Compo was organized at Hotel ATRIA, Toulouse, France, Jun. 28-29, 2000. The workshop was in French, on behalf of IERSET research institute. General chair: Etienne Sicard, INSA/Toulouse, France

EMC COMPO 2002 in Toulouse, France

The 3rd International Workshop EMC Compo 2002, for the first time all in English, was organized at Hotel ATRIA, Toulouse, France, Nov.14-15, 2002, on behalf of IERSET research institute. General chair: Etienne Sicard, INSA/Toulouse, France

EMC COMPO 2004 in Angers, France

The 4th International Workshop EMC Compo 2004 was organized in Mar.31-Apr.1, 2004, Angers, France. Organized by ESEO, Angers, France, General chair: Mohamed Ramdani, professor ESEO

EMC COMPO 2005 in Munich, Germany

The 5th International Workshop EMC Compo 2005 was organized on Nov. 28 - 30, 2005 in Munich, Germany by FhG IZM and Infineon. General chair: Thomas Steinecke, Infineon, Munich

EMC COMPO 2007 in Torino, Italy

The 6th International Workshop EMC Compo 2007 was help Nov.28-30, 2007 at Centro Congressi Unione Industriale, Torino, Italy. General Chair: Prof. Franco Fiori, Politecnico di Torino, Co-Chair: Prof. Vincenzo Pozzolo, Politecnico di Tori

EMC COMPO 2009 in Toulouse, France

The 7th International Workshop EMC Compo 2009 was held in Toulouse, France, Nov.17-19, 2009. It has coincided with the 10th Anniversary of the first EMC compo workshop. General chair: Prof. Etienne SICARD, INSA Toulouse, Scientific Chair: Sonia Ben Dhia, INSA Toulouse, Scientific Co-chair: Bertrand Vrignon, Freescale Toulouse

EMC COMPO 2011 in Dubrovnik, Croatia

The 8th International Workshop on Electromagnetic Compatibility of Integrated Circuits, EMC Compo 2011 has been organized on Nov.6-9, 2011, in Dubrovnik, Croatia. General chair: Renaud Gillon, ON Semiconductor Belgium; Technical program chairs: Georges Gielen, K.U. Leuven, Adrijan Baric, Univ. of Zagreb

EMC COMPO 2013 in Nara, Jpan

The 9th International Workshop on Electromagnetic Compatibility of Integrated Circuits EMC Compo 2013, Nara, Dec.15-18, 2013, Japan has been the first workshop to be held outside Europe. The workshop was focused on emission and susceptibility issues of digital, analogue and mixed-signal integrated circuits. General chair: Osami WADA, professor, University of Kyoto

EMC COMPO 2015 in Edinburgh, Scotland

The 10th International Workshop on the Electromagnetic Compatibility of Integrated Circuits, better known as EMC Compo 2015, has taken place in Edinburgh, United Kingdom between November 10th to 13th, 2015. Conference chair: Kieran O' Leary, Mixed Signal Systems, Scientific chair: John Dawson, University of York

EMC COMPO 2017 in St. Petersburg, Russia

The 11th International Workshop on Electromagnetic Compatibility of Integrated Circuits, EMC Compo 2017, has been organized by Petersburg Electrotechnical University "LETI", St. Petersburg, Russia, Tue 4th – Friday Jul.7 2017

EMC COMPO 2019 in Hangzhou, China

The 12th International Workshop on Electromagnetic Compatibility of Integrated Circuits is chaired by Prof. Er-Ping Li and held in Zhejiang University International Campus, Haining, Hangzhou, China, Oct.21-23, 2019

EMC COMPO 2021 in Bruges, Belgium

EMC Compo 2021 will be chaired by Prof. Davy Pissoort and held in Bruges, Belgium, Autumn 2021

The International Campus of Zhejiang University

The International Campus of Zhejiang University

“电磁兼容EMC”交流平台

这里不仅有业内知名的电磁兼容专家学者，更有成千上万的一线电磁兼容工程师和学生。这里是一个交流电磁兼容技术，分享电磁兼容成果，获取和发布电磁兼容信息的大平台，也是一个电磁兼容大家庭。

“电磁兼容EMC”交流平台致力于为所有电磁兼容工程师和科研工作者以及电子电气工程师和科研工作者，乃至所有对电磁兼容问题怀有兴趣的广大朋友们提供快捷、有用、丰富的电磁兼容技术交流和信息传递服务。希望所有关注、加入我们的人，都能有所获益！

敬请您：

关注“电磁兼容EMC”微信公众号，可以接收电磁兼容技术文章、培训展会、招聘求职、厂商产品等相关内容，微信里搜索公众号“EMC_EMI”或者扫描左侧二维码即可；

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Wechat Public Account “EMC_EMI”

微信群“yzg3369”
WeChat Group “yzg3369”

QQ群“34013334”
QQ Group “34013334”

Electromagnetic Compatibility (EMC) Forum

The Electromagnetic Compatibility (EMC) Forum is a dedicated platform created by the EMC people, for the EMC people. This big family of Electromagnetic Compatibility Forum (EMC-F) consists of thousands of renowned EMC experts and scholars, professors and students, EMC practitioners and engineers, EMC educators and trainers.

The EMC-F is a place where like-minded people are speaking the same language of EMC; talking about latest EMC technologies, R&D results, products, and services; exchanging and disseminating EMC knowledge and information, and so on.

We come together in this EMC-F as a big family, where we respect one another; we may at times disagree with one another about what is said about EMC, but we will defend to the death one another’ s right to say it properly.

As the organizers of the EMC-F, we are striving to provide you with timely, valuable, and relevant EMC technologies and information, so as to continuously improve your user experience as an EMC-F member. We believe in sharing with mutual benefiting for all in the EMC community. We cherish existing EMC-F members and we also warmly welcome anyone who is interested in EMC and related areas to join us.

Institute for Electromagnetic information and Intergration Research

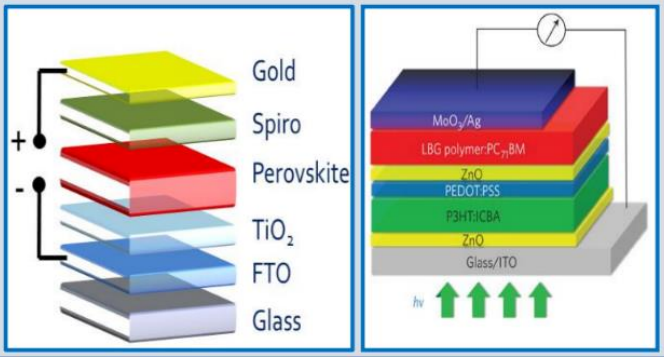
Electromagnetic Environment and EMC Research Center

Center for Electromagnetic Environment and EMC was founded at Zhejiang University and aims to devote the research and development in the fields of : IC and package EMC , system level EMC , antenna research and nano material for EMC . The center strengthens its core capabilities through dedicated R&D , alliance and collaborations with leading research organizations and universities word-wide . It is also committed to collaborate and perform

CORE COMPETENCIES

IC & Package EMC

- IC EMC , Package EMC
- Signal & power intergrity
- Multi-physical analysis

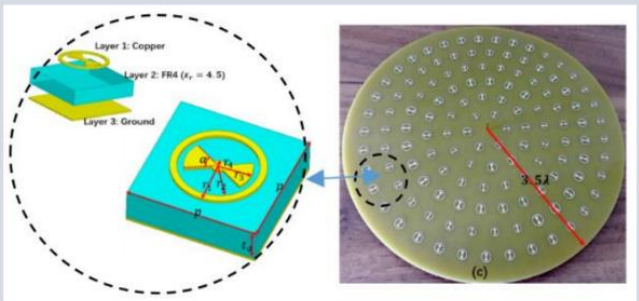


System Level EMC

- Electromagnetic scatting & shielding
- EMI & electrostatic discharge
- Noise propagation& its control

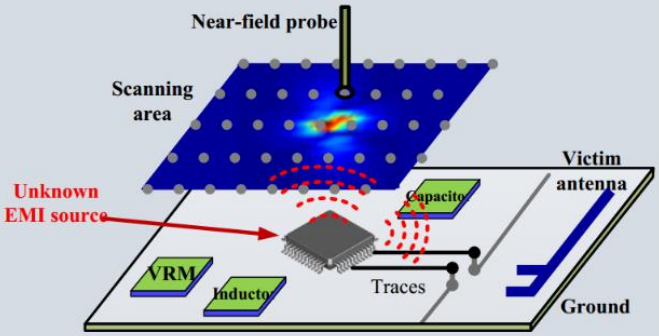
Antenna Research

- Wideband antenna for 5G communication
- Flexible antenna
- Reconfigurable antenna



Nano Material for EMC

- Nana Material for shielding
- Graphene-based FSS
- Grephene-based absorber



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省部共建电工装备可靠性与智能化国家重点实验室

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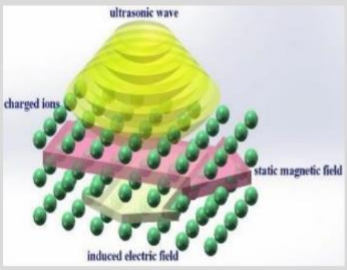

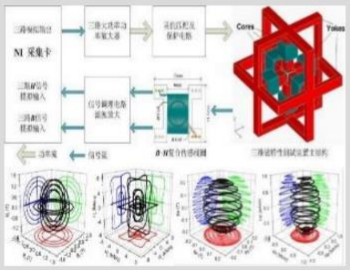

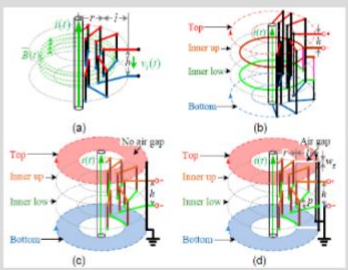

研究方向

方向一：电工装备可靠性理论与失效机理

1. 失效演化机理与建模
2. 可靠性分析与设计理论
3. 运行状态监测与评价

方向二：电工装备电磁综合效应

1. 工程电磁场耦合问题建模与分析
2. 新型电磁系统设计与性能模拟
3. 复杂电磁环境的电磁兼容与防护

方向三：先进电工材料微结构与性能调控

1. 先进电工磁材料特性模拟与表征
2. 新型电工材料微结构分析与设计
3. 宽禁带及低维电子材料制备与分析

方向四：电工装备状态感知与智能控制

1. 智能传感与量测
2. 高效驱动与智能控制
3. 新能源电网与电力电子系统控制

实验室具有“电气工程”国家级双一流学科，“电机与电器”国家重点学科，“电气工程”和“生物医学工程”一级学科博士点，“电气工程”博士后科研流动站，“电气工程”河北省强势特色学科，“电工产品可靠性技术省部共建协同创新中心”国家级创新平台，天津市电力设备可靠性与智能化国际联合研究中心，保定天威保变与河北工业大学共建“输变电产业技术研究院”。中国电工技术学会电工理论与新技术专委会和电工产品可靠性专委会均挂靠在本实验室。

国家科学技术进步奖二等奖 1 项，河北省科技进步一等奖 3 项，河北省技术发明奖一等奖 1 项，河北省科技进步或技术发明二等奖 2 项。现承担国家重点研发计划项目 2 项、国家自然科学基金重点项目 3 项、国家自然科学基金联合基金重点项目 1 项、国家重点研发计划重点专项 2 项国家重点研发计划子课题 1 项，其他国家级项目 33 项，1 项国家自然科学基金重点项目获得 2018 年度优秀结题，总经费 4206 万元；承担省部级项目 49 项，总经费 1847.5 万元；承担横向科技项目 37 项，总经费 1110.78 万元。 实验室共发表学术论文 250 余篇，其中 SCI 检索论文 135 篇，EI 检索论文 50 篇，出版学术专著 1 部，获授权发明专利 96 项，实用新型专利 115 项，实施成果转化 17 项.

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河北工業大学
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Institute of Microwave Technology and EMC

Institute of Microwave Technology and EMC at School of Electronics and Information Engineering in Hebei University of Technology is located in Tianjin, relies on the First level discipline Electronic Science and technology.

Microwave Technology and EMC research group is charged by the IEEE Fellow, Professor Li Er-ping, who is the Principal Scientist at the Singapore National Research Institute of High Performance Computing and the Director of the Department of the Electronic and Photonics. He has received numerous awards including the IEEE Electromagnetic Compatibility (EMC) Richard Stoddard Award for outstanding performance in 2015. The research group consists of three professors, two associate professors and two lecturers. The research group recruits about five doctoral candidates and fifteen graduate students each year.

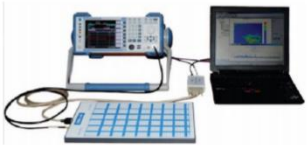
Microwave Technology and EMC research group research activities focus on Electrical Modeling and Design of Micro/Nano-scale Integrated Circuits, 3-D Electronic Package Integration, and Nano-plasmonic Technology, Electromagnetic Compatibility Theory and Technology. Microwave Technology and EMC research group undertakes National Natural Science Foundation of China, Natural Science Foundation of Hebei Province and other research projects, the cumulative funding are more than 4,000,000 Yuan. Microwave Technology and EMC research group also works closely with the HUAWEI Technology Co., Ltd., Keysight Technology Co., Ltd. The Group have already had an impact on the regulatory approach, research, and interactions with the device industry, and has developed a draft strategy to address EMC concerns across all appropriate device areas.

Microwave Technology and EMC research laboratory have Anechoic Chamber, Vector Network Analyzer (40GHz), EMI receiver (26.5GHz), Vector Synthesis Signal Source (40GHz), Digital Oscilloscope (26.5GHz), Microwave Probe Station, ESD test system, GTEM Cell Radiated Immunity test system, PCB EMC scanner and IC EMC Measurement equipment; Also have CST electromagnetic simulation and calculation software and Comsol physical field simulation analysis software, which means an advanced scientific research and testing platform.

Vector Network Analyzer

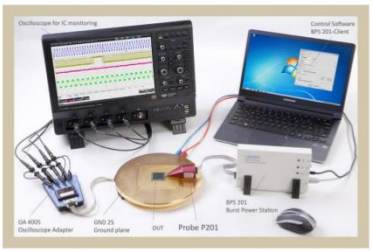
EMI Receiver

Vector Synthesis Signal Source



PCB EMC scanner

ESD test system



IC EMC Measurement equipment

GTEM Cell Radiated Immunity test system

Microwave Probe Station

Introduction of Nanjing University of Science and Technology

Nanjing University of Science and Technology (NUST) is one of the national key universities under the guidance of the Ministry of Industry and Information Technology. The university has more than sixty years' experience in providing inspiring and broadened-horizon education. It has become a multi-disciplinary university comprising academic fields including: science, engineering, liberal arts, economics, business, management, law and education. In addition, NUST encompasses a wide array of centers, institutes, programs, and administrative support offices.

Led by a distinguished faculty, NUST carries on its education and research on both undergraduate and post graduate levels in dynamic research fields. I has 18 schools: School of Mechanical Engineering, School of Chemical Engineering, School of Electronic and Optical Engineering, School of Computer Science and Technology, School of Automation, School of Energy and Power Engineering, School of Economics and Management, School of Science, School of Public Affairs, School of Material Science and Engineering, School of Environmental and Biological Engineering, School of Foreign Studies, School of Design and Communication, School of Intellectual Property, School of Maxism Studies, School of Sino-French Engineering, School of International Education. Currently, more than 30,000 students study at NUST.

NJUST has energetically conducted exchange and cooperation of education and research at home and abroad, having established cooperative relationships with nearly 100 universities and research institutes in dozens of countries.

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The 2020 **Asia-Pacific International Symposium on Electromagnetic Compatibility & Signal Integrity and Technical Exhibition** (**APEMC2020**) will be held in Sydney, Australia, May 19 to 22, 2020. APEMC originated in Singapore in 2008. It has become one of the premier international conferences of EMC community. After APEMC was held in Melbourne in 2013, the event is now back in Australia. Sydney has the world's most beautiful harbour and is proud to be selected to host the APEMC 2020.

Continuing APEMC spirit and addressing the global EMC challenges and explorations, APEMC 2020 will offer a rich and diverse scientific program of the highest quality, with invited speakers from all over the world and serve as a broad exchange platform for both academia and industry. The symposium will recognize innovations and technology leaderships through the Best Symposium Paper Award, the Best Student Paper Award, and other recognitions. The symposium will cover the entire scope of electromagnetic compatibility, electromagnetic environment, signal integrity issues and feature emerging EMC technologies. Prospective authors are invited to submit original papers on their latest research results. Proposals for special sessions, industrial forums, workshops and tutorials are also cordially solicited.

We welcome you to join this unique symposium, meet international peers, present your latest research findings, share your insight and perspectives, discuss with experts and innovators, explore collaborations, visit exhibitions and catch up new products.

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■ Notification of Acceptance	**Jan. 22, 2020**
■ Final Paper Submission	**Feb. 18, 2020**

All accepted and presented full papers will be included in IEEE Xplore.

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